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Three-Dimensional Finite Element Model of a High Power,
Low Frequency Ring-Shell Flextensional Sonar Transducer

by

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Submitted in partial fulfillment
of the requirements for the degrees of
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ABSTRACT

A three-dimensional finite element model of a high power, low frequency ring-shell flextensional transducer (Sparton of Canada, Ltd. Model 34A0610 [Ref. 1]) was developed for use with the ATILA code [Ref. 2]. This transducer model is to be coupled with an analytical acoustic field description in order to model a dense sonar array of US Navy interest [Ref. 3].

The three-dimensional model was derived from a two-dimensional model provided by the Naval Undersea Warfare Center [Ref. 4]. Two types of finite-element analyses were performed using ATILA: (1) an in-air modal analysis, in which the eigenfrequencies and eigenmodes are computed, and (2) an in-water harmonic analysis, in which the pressure field at a desired driving frequency is computed. The frequency of the ring mode computed for the three-dimensional model in the modal analysis was found to be 5 percent higher than the corresponding value for the two-dimensional model. From the harmonic analyses, the maximum sound pressure level on the acoustic axis was found to be 4 dB higher than the manufacturer's measured value and is located at exactly the same frequency.

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TABLE OF CONTENTS

I. INTRODUCTION	1
II. THEORY	6
A. FINITE ELEMENT ANALYSIS, THE ATILA CODE	6
B. HARMONIC ANALYSIS OF A RADIATING PIEZOELECTRIC TRANSDUCER	7
C. MODAL ANALYSIS OF A PIEZOELECTRIC TRANSDUCER	11
III. TRANSDUCER DESCRIPTION	13
IV. THREE-DIMENSIONAL MODEL	15
A. INTRODUCTION	15
B. CHARACTERISTICS OF THE MODEL	16
1. MATERIAL PROPERTIES	16
a. Piezoelectric ceramic	16
b. Fiberglass	18
c. Shells	19
2. TYPES OF ELEMENTS	19
3. CONSTRAINTS ON MESH DESIGN	20

a. Aspect ratio	20
b. Internal angles	20
c. Element size	20
d. Interelement compatibility	20
e. Coupling of shell elements to solid elements	20
f. Radiation boundary elements	21
4. FINAL MESH DESIGNS	22

V. RESULTS	25
----------------------	----

A. IN-AIR MODAL ANALYSES	25
B. IN-WATER HARMONIC ANALYSES	27

VI. CONCLUSIONS	33
---------------------------	----

APPENDIX A	34
----------------------	----

LIST OF REFERENCES	78
------------------------------	----

INITIAL DISTRIBUTION LIST	80
-------------------------------------	----

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I. INTRODUCTION

The direction of active sonar surveillance systems is toward lower frequencies, requiring arrays of large, high power transducers. The successful design and operation of such arrays requires the ability to predict reliably their performance.

To this end, Professor S. R. Baker of the Physics Department, and Professors D. R. Canright and C. L. Scandrett from the Mathematics Department of the Naval Postgraduate School have established a research program with the goal of developing the means to predict the performance of arbitrarily dense, volumetric active sonar arrays [Ref. 3]. The approach used is based on the T-matrix method, which has been successfully applied to solve multiple scattering problems [Ref. 5]. In the present application, the acoustic field external to an arbitrary collection of radiators (here a radiator is a transducer surrounded by fluid to some arbitrary radius) is represented as a superposition of free-space radiation eigenfunctions (spherical harmonics). For each individual radiator a transition matrix, or T-matrix, is computed, which relates the expansion coefficients of outgoing waves to those of incoming waves and the driving

voltage. This requires the results of two harmonic finite element analyses, the free-field radiation problem and the single element scattering problem. Ultimately, the T-matrix of the total configuration, relating the far-field pressure to the driving voltage applied to each element, is obtained in terms of the T-matrix of the individual elements and translation matrices (of the spherical functions) that depend on the distance between and relative orientation of pairs of elements.

This thesis is concerned with the application of the finite-element code "ATILA", developed at the Institut Supérieur d'Electronique du Nord (Lille, France) [Ref. 2] to provide a three-dimensional model of a low frequency flextensional transducer of US Navy interest, the Model 34A0610 "ring-shell" transducer, manufactured by Sparton of Canada, Ltd. [Ref. 1], illustrated in Fig. 1. This transducer was used for proof of principle tests of the so-called "billboard" array concept, which is illustrated in Fig. 2. The results of harmonic radiation and scattering analyses performed using ATILA with the three-dimensional model will be used to generate the single-element T-matrix for this transducer, and so enable the billboard array to be modeled using the modified T-matrix method. The solution of the radiation problem is described in this thesis. The solution of the scattering problem can not be performed at this time. It will be performed using the same three-dimensional model as

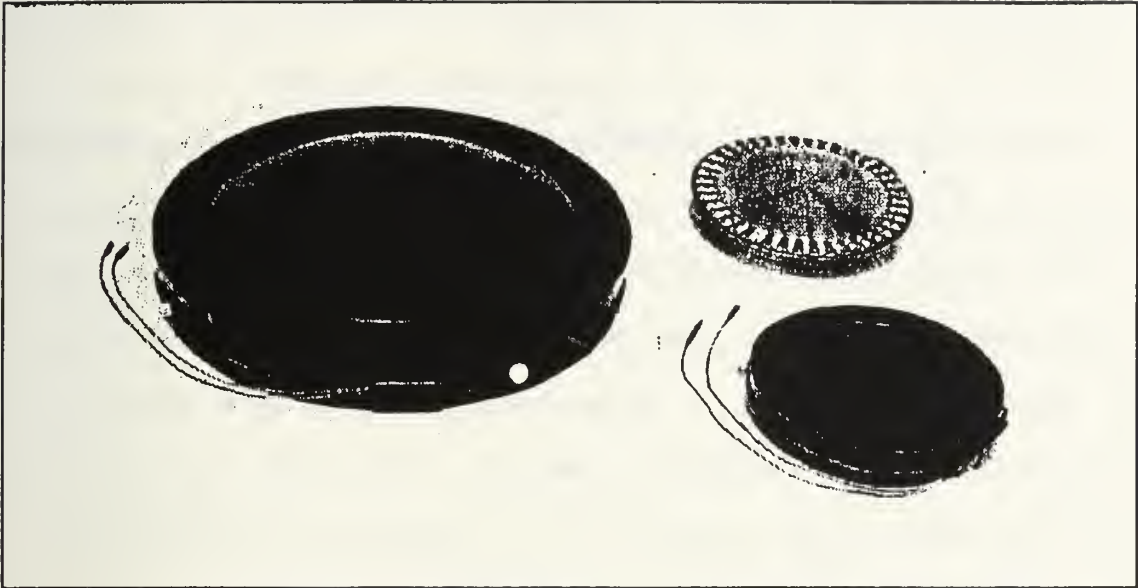


Figure 1 Sparton Flextensional Transducers. From Ref. 1.

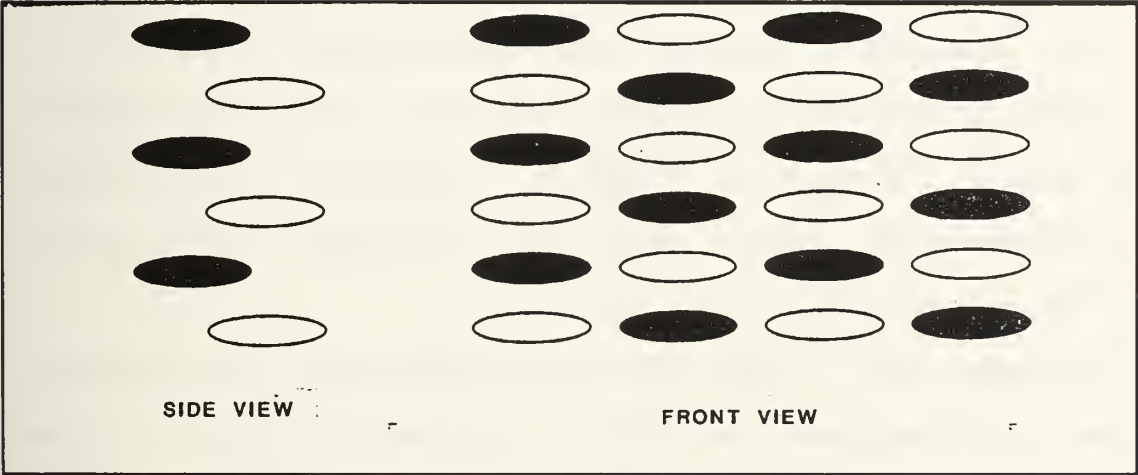


Figure 2 "Billboard" Array Concept.

for the radiation problem as soon this capability is available in ATILA.

A two-dimensional (axisymmetric) model of the ring-shell transducer was developed by the Naval Undersea Warfare Center [Ref. 4]. This model contains 285 elements, 825 nodes, and 1026 degrees-of-freedom. However, an axisymmetric model is not sufficient for modeling a dense array, since all modes of vibration (symmetric and anti-symmetric) can be excited by the incoming pressure field generated by neighboring transducers. A three-dimensional model is necessary.

A three-dimensional model is considerably more complex and requires far more computational time and computer memory. There is, however, a limit of 3000 degrees-of-freedom imposed by our version of the ATILA code. This limitation means that it is not feasible to obtain a three-dimensional model of the ring-shell transducer by a simple rotation of the axisymmetric model about its axis of symmetry. Instead, a simplified three-dimensional model with an acceptable engineering accuracy was pursued.

The remainder of this thesis is divided into six chapters. Chapter II describes the theory involved with the finite element analysis of piezoelectric transducers. Chapter III describes the transducer in question. Chapter IV discusses finite element model design considerations and the characteristics of the three-dimensional model. Chapter V presents and discusses the results of in-air modal analyses

and in-water harmonic analyses. Chapter VI presents the conclusions. Appendix A contains a copy of the input data file for the most refined mesh used in the harmonic analyses.

II. THEORY

A. FINITE ELEMENT ANALYSIS, THE ATILA CODE

The application of finite element analysis (FEA) to solve boundary value problems consists of the transformation of the governing differential or integral equation(s) into a multi-nodal matrix equation, the solution of which represents the discretized solution of the problem. There are many techniques to obtain a finite element formulation [Refs. 6,7,8,9].

ATILA is a finite element code developed at Institut Supérieur d'Electronique du Nord (ISEN) in France for the analysis of underwater transducers. It utilizes the variational formulation of the finite element problem [Refs. 10,11,12,13,14].

ATILA uses quadratic isoparametric elements. Isoparametric means the same polynomial (quadratic) is used to interpolate both geometry and field variation.

ATILA has 46 different types of elements. There are shell, plate, transition, spring, trilaminar, and two- and three-dimensional isoparametric elements of various geometries. It is possible to model elastic, piezoelectric, magnetostrictive, magnetic and composite materials, fluids, solid-fluid interfaces, and radiation dampers.

ATILA can perform: (1) static analyses, (2) modal analyses, which correspond to a free vibration problem, where the eigenfrequencies and eigenmodes are computed, and (3) harmonic analyses of radiation or scattering problems, which correspond to a forced vibration problem, the excitation being the voltage applied across the electrical terminals of the transducer or external forces applied to the nodes.

B. HARMONIC ANALYSIS OF A RADIATING PIEZOELECTRIC TRANSDUCER

This problem is governed by the equations of motion in the elastic and piezoelectric structures, by Poisson's Equation in the piezoelectric structures, and by Helmholtz's Equation in the fluid. Appropriate boundary conditions are defined, both on the solid-fluid interface and over the external fluid boundary, which must simulate the appropriate radiation condition.

The solid equation of motion is given by [Refs. 13,18,19]:

$$\rho \frac{\partial^2 u_i}{\partial t^2} = \frac{\partial \sigma_{ij}}{\partial x_j} \quad (1)$$

where ρ is the solid material density, u is the displacement vector, t is time, $[\sigma]$ is the stress tensor, and x_j is a coordinate direction. Here i and j can be 1, 2 and 3, and the Einstein notation is used, where summation is implied over repeated indices in the same term.

Poisson's Equation is given by [Refs. 13,18,19]:

$$\frac{\partial D_i}{\partial x_i} = 0 \quad (2)$$

where D is the electric displacement vector and x_i is a coordinate direction; i can be 1, 2 and 3.

The linearized, lossless Helmholtz Equation for the propagation of sound in fluids is given by [Ref. 15]:

$$\nabla^2 p - \frac{1}{c^2} \frac{\partial^2 p}{\partial t^2} = 0 \quad (3)$$

where ∇^2 is the three-dimensional Laplacian operator, p is the acoustic pressure, and t is time.

In piezoelectric materials the stress tensor and the electric displacement vector can be related to the strain tensor and the electric field vector and its material properties using the following constitutive equations, which neglect magnetic and pyroelectric effects [Refs. 13,18,19]:

$$\sigma_{ij} = c_{ijkl}^E S_{kl} - e_{kij} E_k \quad (4)$$

$$D_i = e_{ikl} S_{kl} + \epsilon_{ij}^S E_j \quad (5)$$

where $[\sigma]$ is the stress tensor, $[S]$ is the strain tensor, E is the electric field vector, D is the electric displacement

vector, $[c^E]$ is the constant electric field elastic stiffness tensor, $[e]$ is the piezoelectric tensor, and $[\epsilon^S]$ is the constant strain dielectric tensor; i, j, k and l can be equal to 1, 2 and 3.

Ultimately the solution is desired in terms of displacements and electric potentials. To this end the following two equations from elasticity and electricity, respectively, are used [Refs. 13,18,19]:

$$S_{ij} = \frac{1}{2} \left(\frac{\partial u_i}{\partial x_j} + \frac{\partial u_j}{\partial x_i} \right) \quad (6)$$

$$E_i = - \frac{\partial \Phi}{\partial x_i} \quad (7)$$

where $[S]$ is the strain tensor, \mathbf{u} is the displacement vector, x_i is a coordinate direction, \mathbf{E} is the electric field vector and Φ is the electrical potential; i and j can be equal to 1, 2 and 3.

The boundary conditions and prescribed excitations at each node can be defined either by a displacement or an applied force, an electrical potential or an electrical charge, or an acoustic pressure.

In ATILA, the previous seven equations are transformed into the following matrix equation [Refs. 2,11,12,14]:

$$\begin{bmatrix} [K_{uu}] - \omega^2 [M] & [K_{u\Phi}] & -[L] \\ [K_{u\Phi}]^T & [K_{\Phi\Phi}] & [0] \\ -\rho^2 C^2 \omega^2 [L]^T & [0]^T & [H] - \omega^2 [M_1] \end{bmatrix} \begin{bmatrix} U \\ \Phi \\ P \end{bmatrix} = \begin{bmatrix} F \\ -q \\ \rho C^2 \Psi \end{bmatrix} \quad (8)$$

where the variables are defined as:

- U : vector of the nodal values of the components of the displacement field,
- Φ : vector of the nodal values of the electrical potential,
- P : vector of the nodal values of the pressure field,
- F : vector of the nodal values of the components of the externally applied forces,
- q : vector of the nodal values of the externally applied electrical charges,
- Ψ : vector of the nodal values of the integrated normal derivative of the externally applied pressure field (proportional to the externally applied flux),
- $[K_{uu}]$: stiffness matrix,
- $[K_{u\Phi}]$: piezoelectric matrix,
- $[K_{\Phi\Phi}]$: dielectric matrix,
- $[M]$: consistent mass matrix,
- $[H]$: fluid (pseudo-) stiffness matrix,

$[M_1]$: consistent fluid (pseudo-) mass matrix,
 $[L]$: coupling matrix at the fluid structure interface,
 $[0]$: zero matrix,
 ω : angular frequency,
 ρ : fluid density,
 c : fluid sound speed,

and the superscript T represents the matrix transpose.

The results of this analysis for each input frequency are the complex displacement, rotation, and electrical potential fields at each transducer node, the complex pressure field at each fluid node, and the complex electrical impedance and admittance.

C. MODAL ANALYSIS OF A PIEZOELECTRIC TRANSDUCER

This problem is governed by the equations of motion in the elastic and piezoelectric structures, and by Poisson's Equation in the piezoelectric structures. The matrix equation governing this problem is easily obtained from that described in the previous section. In a modal analysis there is no fluid and there are no external forces applied (the natural boundary conditions), so the third row and column of Eq. (8) become irrelevant, and F is replaced by 0, resulting in

$$\begin{bmatrix} [K_{uu}] - \omega^2 [M] & [K_{u\Phi}] \\ [K_{u\Phi}]^T & [K_{\Phi\Phi}] \end{bmatrix} \begin{bmatrix} U \\ \Phi \end{bmatrix} = \begin{bmatrix} 0 \\ -q \end{bmatrix} \quad (9)$$

where the elements are as defined in Eq. (8).

In this equation the resonance condition, which corresponds to the electrical short-circuit condition, is obtained by setting $\Phi=0$. The anti-resonance condition, which corresponds to the electrical open-circuit condition, is obtained by setting $q=0$.

The results of this analysis are the eigenfrequencies and eigenmodes. The maximum number of modes, which must be specified by the user, is 100.

III. TRANSDUCER DESCRIPTION

The transducer modeled in this research project is the Model 34A0610 manufactured by Sparton of Canada, Ltd. [Ref. 1]. It is a depth-compensated, high power, low frequency type V flextensional transducer (so-called "ring-shell"). A cutaway view is shown in Fig. 3 [Ref. 1]. The motor element consists of a set of 144 plates of thickness-poled lead zirconate titanate ceramic of dimensions 8x8x1 cm separated by 72 steel wedges, arranged in a 0.8 m diameter ring [Ref. 4]. The ceramic plates are connected electrically in parallel and effectively poled tangentially. One ST 4340 steel thin shell (a spherical section) is fastened to each ring planar surface. The ring is wrapped on the outside by a fiberglass belt, which provides a compressive stress of 25-40 MPa [Ref. 4].

The main operational characteristics of the transducer are [Ref. 1]:

- a. Resonance Frequency, which corresponds to the maximum voltage response in water - 610 Hz;
- b. Source Pressure Level, which corresponds to the effective pressure on the acoustic axis, at resonance - 213 dB re $1\mu\text{Pa}$ at 1 meter (driven by 3000 volts rms);

- c. Efficiency, which is the ratio of the output acoustic power to the input electric power - 90 percent at resonance, 65 percent at the -6dB points;
- d. Operational Depth, which corresponds to the maximum depth where the performance of the transducer is not compromised - exceeds 400 m.

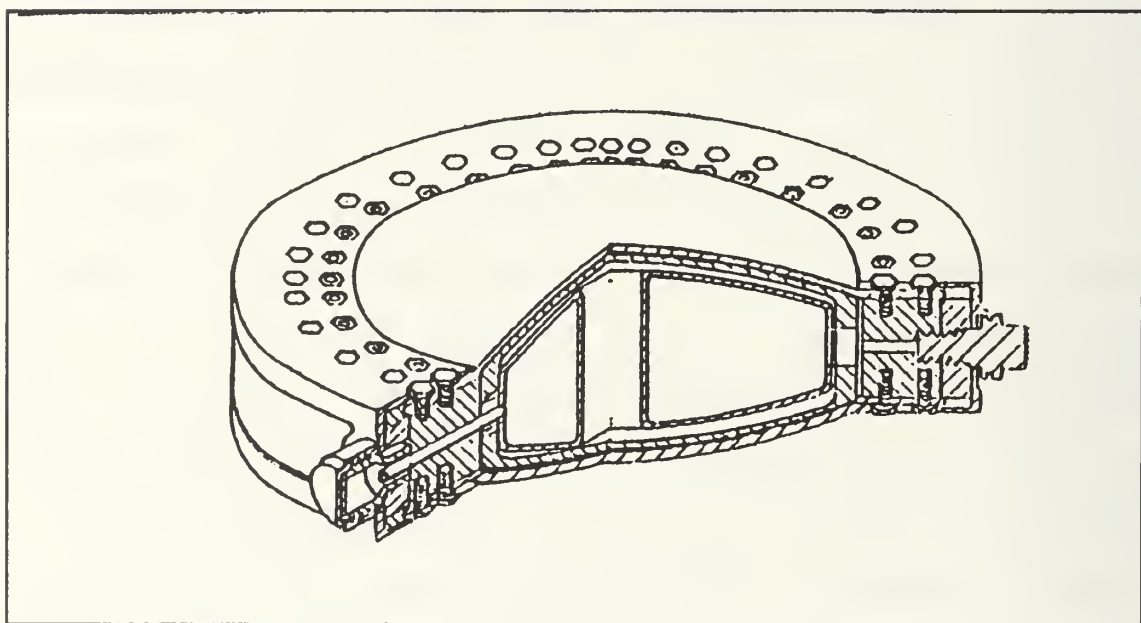


Figure 3 Cutaway view of the transducer. From Ref. 1.

IV. THREE-DIMENSIONAL MODEL

A. INTRODUCTION

As mentioned in Chapter I, the performance modeling of a dense sonar array by means of the T- matrix method requires the computation of the radiation and scattering of an individual transducer. This can be accomplished very accurately using finite element analysis (FEA); however a three-dimensional (3-D) model must be employed.

A 3-D finite element model of a flextensional transducer has an inherent complexity compared to a corresponding 2-D model. The major limitation is the number of degrees of freedom (DOF) available, which depends upon the computer used. A simple transformation of the available 2-D model into a 3-D model would represent roughly more than 10000 DOF just for the solid structure. This already exceeds the maximum allowed degrees of freedom on the MICROVAX VMS system, where the ATILA code is installed, and so is not feasible.

Consequently, the objective of this research became to develop the simplest 3-D model of the Sparton ring-shell transducer that could reproduce, within acceptable error limits when compared with experimental data, its pertinent electroacoustic properties.

B. CHARACTERISTICS OF THE MODEL

1. MATERIAL PROPERTIES

All material properties are included on the first page of Appendix A. The format is according to the ATILA user's manual [Ref. 2].

a. Piezoelectric ceramic

As described before, the transducer has 144 tangentially poled lead zirconate titanate ceramic plates separated by 72 steel wedges, arranged in a 0.8 m diameter ring. An illustration of this arrangement is shown in Fig. 4. In order to simplify the model, a homogeneous ring with material properties equivalent to an adequate combination of the ceramic and steel was used. This is illustrated in Fig. 5. These properties were provided to us by Blottman who obtained them from McMahon [Ref. 4]: "The smeared material properties were obtained by McMahon and Armstrong through in-air measurement of the segmented ring during various stages of assembly. The measurements consist of the resonance and anti-resonance frequencies and the electrical capacitance." These properties take into consideration the compression given by the fiberglass wrapping. The given ceramic properties include losses, but as will be noted later, the results of harmonic analyses that included losses yielded a pressure field about 100 times smaller than the corresponding experimental results.

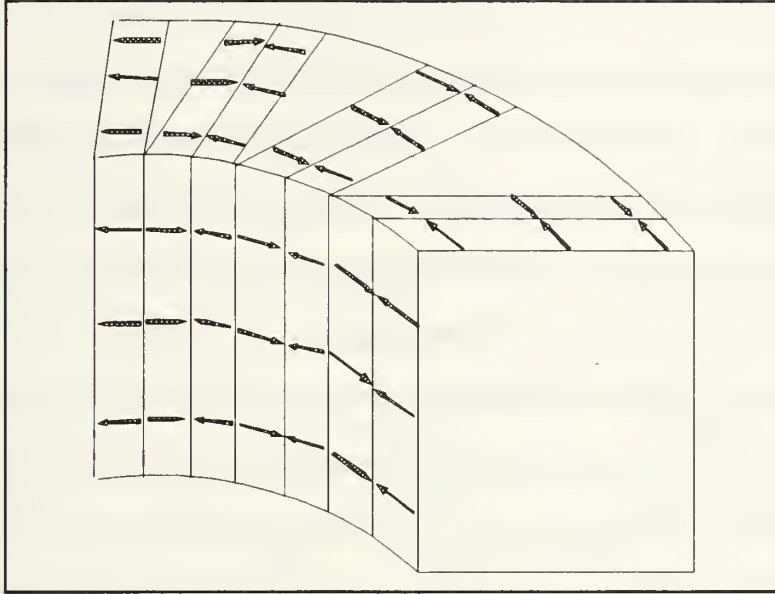


Figure 4 Original ring-shell arrangement.

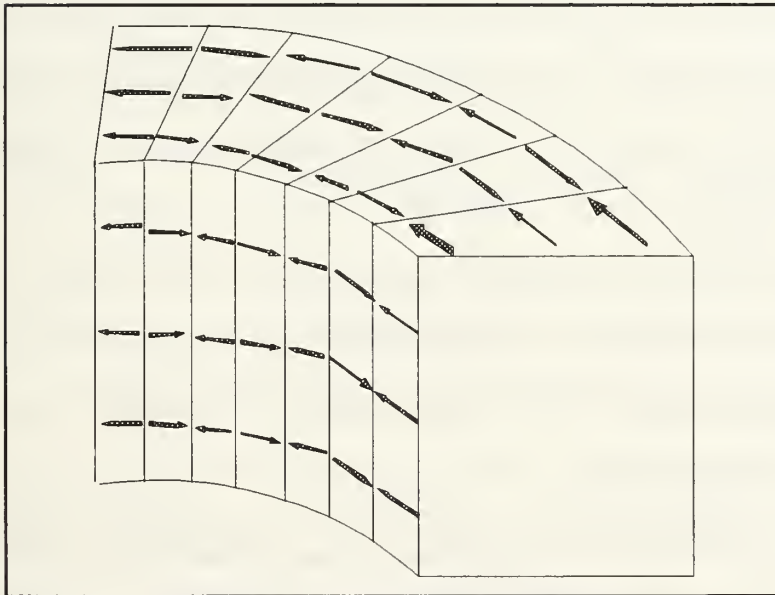


Figure 5 Smeared ring-shell arrangement.

To model the transducer with its actual polarization requires the use of a very large number of elements because of the mesh design requirements; therefore the polarization was switched to an equivalent axially-poled ring. The transformation of the polarization is obtained by a suitable exchange of the elastic, piezoelectric and dielectric tensors. The procedure is outlined in the ATILA user's manual [Ref. 2].

Note that the ATILA manual describes the transformation from tangential polarization to radial polarization, which is not the present case. An axial orientation was chosen here rather than a radial orientation in order to simplify the application of electrical boundary conditions. Because of this modification the results of harmonic analyses have to be modified as follows: (1) divide the displacement and pressure fields by the ratio of the circumferential length of a "smeared" piezoelectric element (which is equal to $1/144$ of the the ring circumferencial length) to its height, and (2) multiply the electrical impedance by the square of the same ratio. In the present case this ratio is 0.1958.

b. Fiberglass

To simplify the model the fiberglass wrapping was modeled as an equivalent shell; otherwise a considerable number of additional elements would be required.

c. Shells

Their actual material properties were used.

2. TYPES OF ELEMENTS

The following quadratic isoparametric elements, which are described in the ATILA User's Manual [Ref. 2], were used:

TABLE 1

Region	Element	Geometry
Piezoelectric ring	HEXA20P	20-node hexahedron
Shells	SHEL06C	6-node triangle
Fiberglass wrapping	QUAD08E	8-node quadrilateral
Interface solid-fluid	TRIA12I	2x6-node triangle
Interface solid-fluid	QUAD16I	2x8-node quadrilateral
Fluid	PRISM15F	15-node triangular base prism
Fluid	HEXA20F	20-node hexahedron
Radiation surface	TRIA06R	6-node triangle
Radiation surface	QUAD08R	8-node quadrilateral

3. CONSTRAINTS ON MESH DESIGN

Design of the mesh was guided by the following constraints:

a. Aspect ratio [Ref. 2]

The aspect ratio of each element should be not greater than 3, although 4 is considered an acceptable, though less conservative, value.

b. Internal angles [Ref. 2]

The internal angles of each elements should be not smaller than 45 degrees and not greater than 135 degrees, although 30 degrees and 150 degrees are considered, respectively, acceptable, though less conservative, values.

c. Element size [Ref. 2]

As ATILA utilizes quadratic interpolation functions, the size of each element must be not greater than one fourth of a wavelength at the highest frequency of interest.

d. Interelement compatibility

The mesh should be built in such a way that adjacent elements have adjoining sides with collocated nodes to ensure accurate interpolation at their interfaces.

e. Coupling of shell elements to solid elements

Unlike two-dimensional elements, ATILA does not provide three-dimensional transition elements to match solid (piezoelectric) and shell three-dimensional elements. To

perform harmonic analyses it was necessary to delete the rotational degrees-of-freedom (DOF) for the piezoelectric nodes, which means that a clamped condition, which is not quite realistic, was assumed between the shell and the piezoelectric ring. As will be seen later, as the mesh becomes more and more refined, this assumed boundary condition becomes less and less significant.

f. Radiation boundary elements [Ref. 2]

For in-water harmonic analyses (radiation problems) the fluid mesh outer limit must be spherical. This is required by the radiation elements available in the ATILA code. ATILA offers so-called monopole and dipole radiation damping elements. The latter includes not only the monopole term of the radiated field multipolar expansion, but also the dipole term. Dipolar damping elements were selected to terminate the fluid mesh because they provide a more accurate solution than the monopolar damping elements for the mesh employed.

A fluid mesh outer limit radius greater than the far-field distance is desirable to compute the acoustic source pressure level and to compare computed and measured acoustic pressure data. The boundary was placed at a radius R equal to 0.72 m from the transducer's acoustical center, which is beyond 3.5 times the far-field limit of the equivalent piston-like source at the resonance frequency [Ref. 16].

4. FINAL MESH DESIGNS

With the above constraints one coarse mesh was designed for each type of analysis to be performed: in-air modal and in-water harmonic. An in-air modal analysis requires only the transducer to be modeled. An in-water harmonic analysis requires in addition the surrounding fluid to be modeled. The transducer coarse mesh consists of 12 shell elements and 8 solid elements, totaling 250 DOF, and is shown in Fig. 6. The total coarse mesh, which includes the fluid, contains in addition, 20 interface elements, 72 fluid elements, and 28 radiating elements, totaling 1330 DOF. This mesh is shown in Fig. 7. Based on these meshes and using the pre-processor mesh generator MOSAIQUE [Ref. 2], two mesh refinements were obtained. The most refined transducer mesh, which is shown in Fig. 8, consists of 40 shell elements and 24 solid elements, totaling 557 DOF. The corresponding total mesh, which is shown in Fig. 9, contains, in addition, 56 interface elements, 176 fluid elements and 72 radiating elements, totaling 2868 DOF. The input data file of this mesh is given in Appendix A.

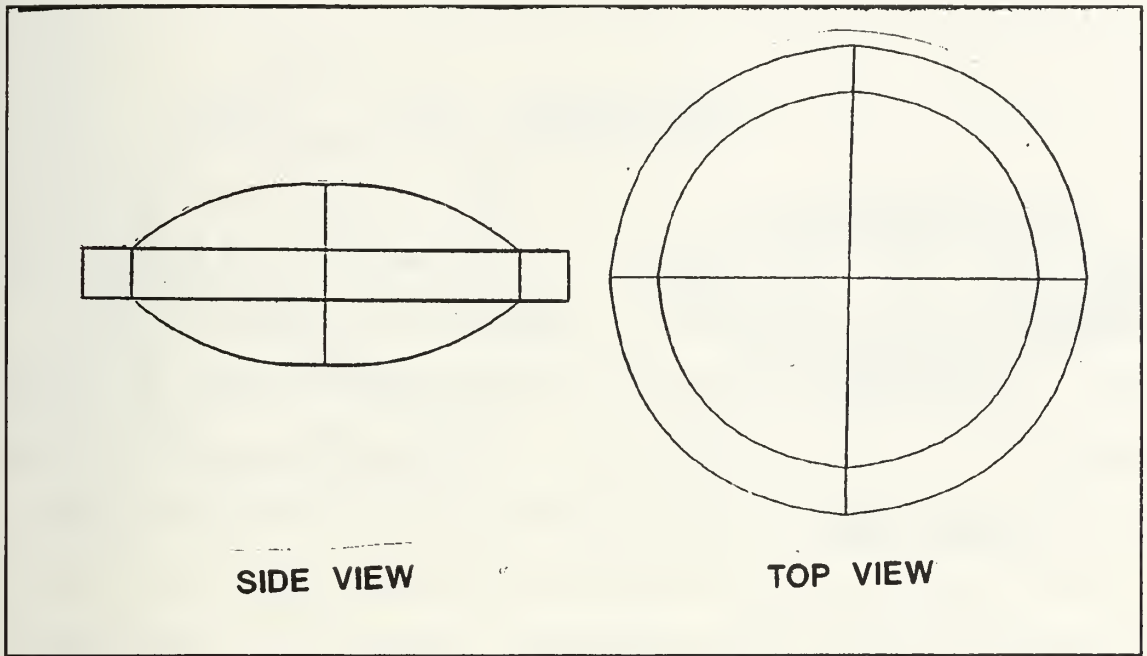


Figure 6 Transducer coarse mesh.

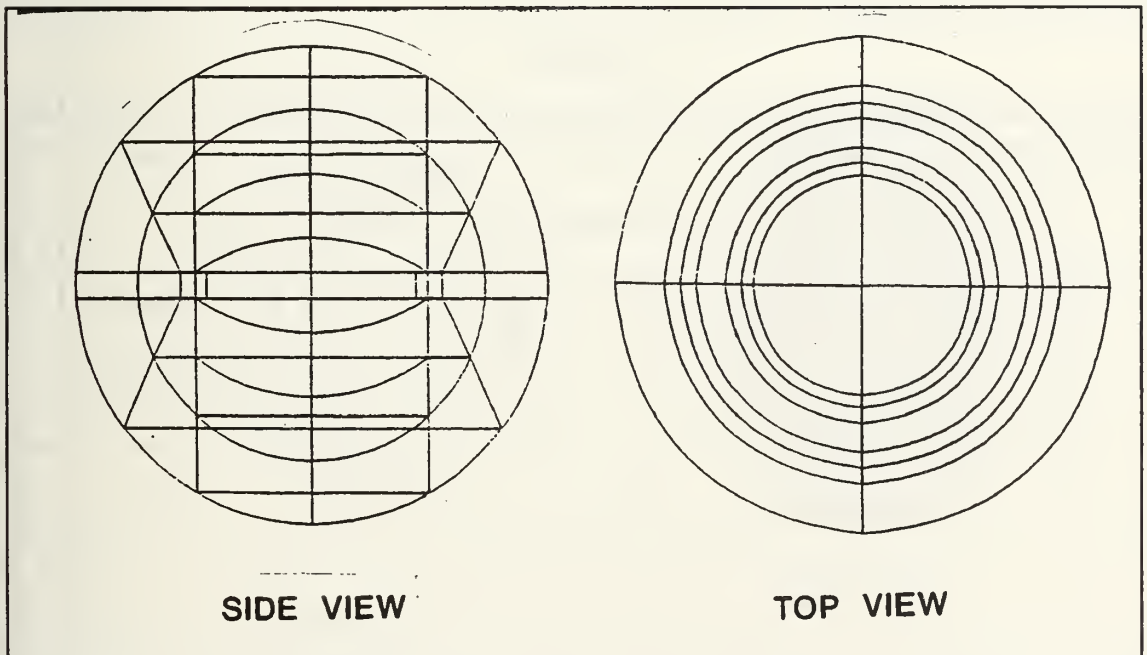


Figure 7 Total coarse mesh.

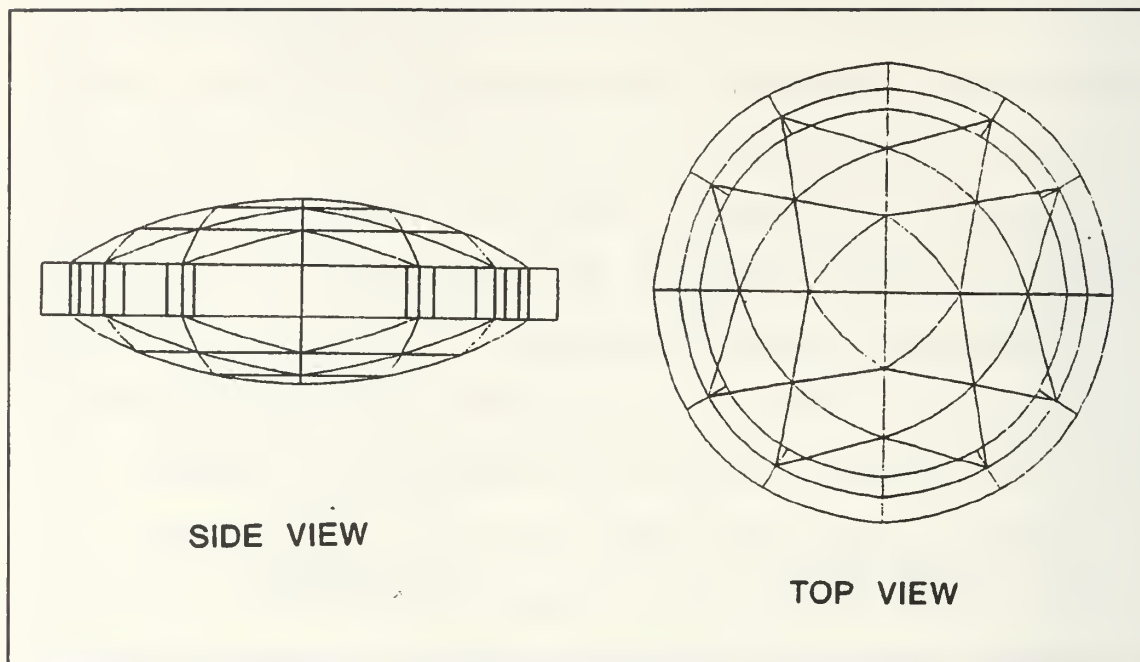


Figure 8 Transducer refined mesh.

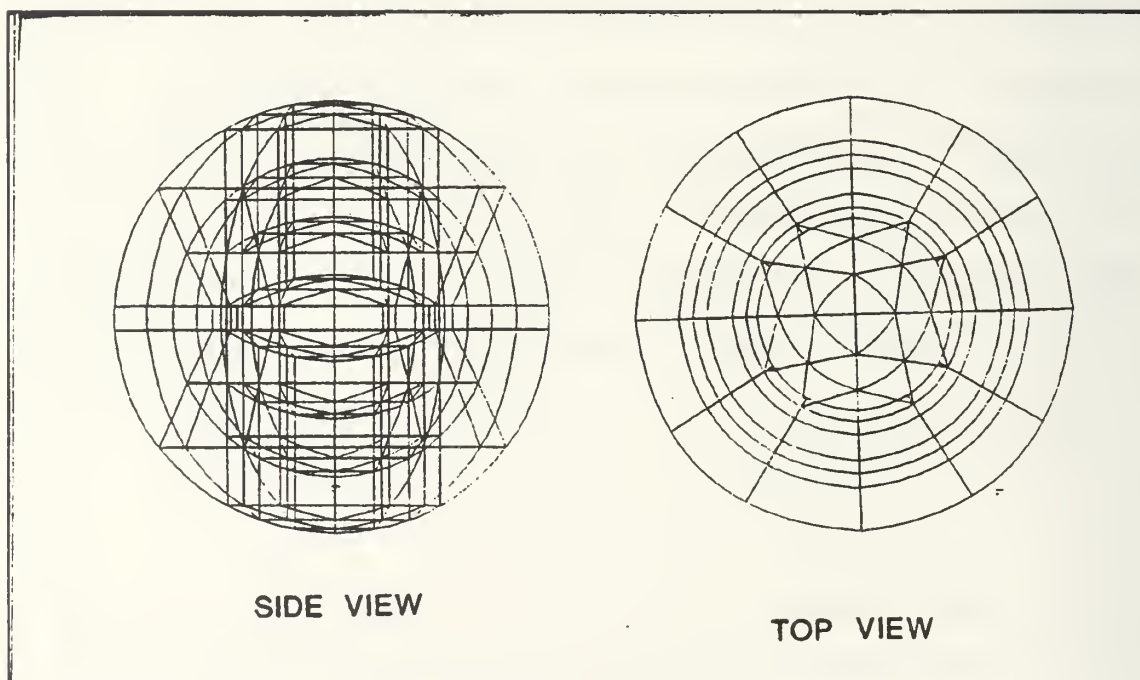


Figure 9 Total refined mesh.

V. RESULTS

A. IN-AIR MODAL ANALYSES

This analysis corresponds to a free vibration problem, where the eigenfrequencies and eigenmodes are computed. Three mesh grades were analysed. For each one, the first twenty eigenfrequencies and eigenmodes were calculated (including the rigid body ones). The following table, which includes the two-dimensional (2-D) model, summarizes some characteristics of each mesh, along with the resonance frequency of the mode of vibration shown in Fig. 10, which is the most important in operation.

TABLE 2

Mesh	Coarse	Inter- mediate	Refined	2-D Model
Nodes	20	202	350	191
Elements	20	56	180	42
DOF	250	730	1330	392
Micro Vax II CPU Time	580 sec	9 hr	24 hr	14 min
Frequency	1746 Hz	1098 Hz	1002 Hz	957 Hz

The dashed lines in Fig. 10 correspond to the rest position; the solid lines correspond to the displaced position. Note the opposite sense of the motion of the ring and shells.

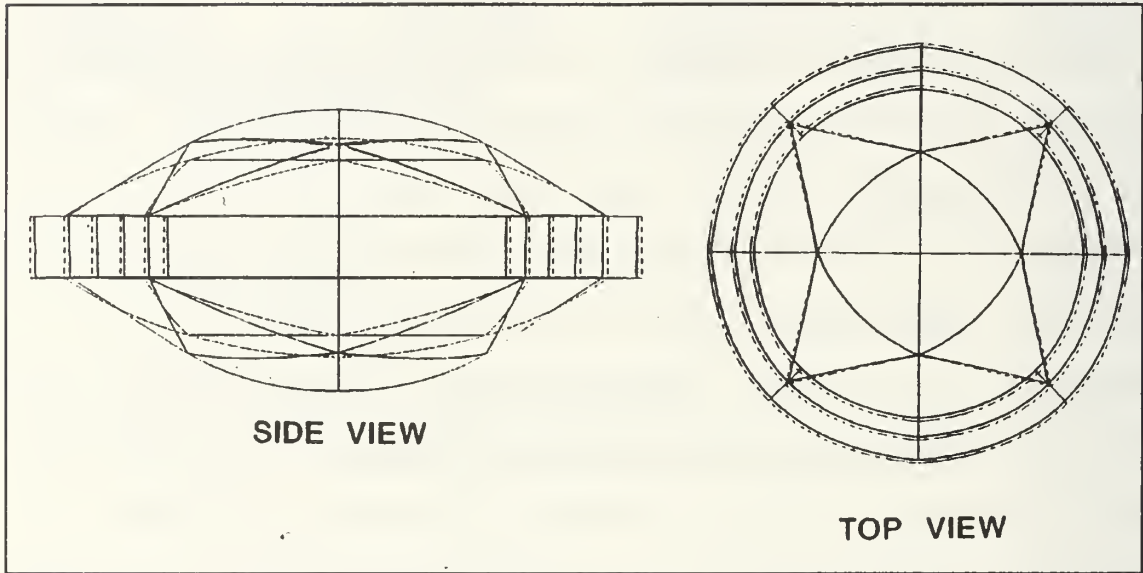


Figure 10 Ring mode of vibration.

A comparison between the results of the ring mode frequency for the more refined 3-D mesh and the 2-D model shows that the first is 5 percent higher than the second. Notice from Table 2 that as the mesh becomes more and more refined, the ring mode natural frequency value approaches more closely the corresponding 2-D model value. This is in part due to the clamped condition between the shell and the piezoelectric ring, which is not quite right, and possibly because of the use of a limited number of elements to describe the shape of the shell.

B. IN-WATER HARMONIC ANALYSES

This analysis corresponds to a forced vibration problem, the excitation being the voltage applied across the electrical terminals of the transducer. Three mesh grades were analysed, now including not only the transducer elements, but the interface, fluid and radiating elements. Internal material losses are not included in this model because the results obtained with such losses included were found to be about 40 dB below the corresponding measured values. The reason for this is not known. It is a problem which appeared only in three-dimensional modeling; no such problem was observed for axisymmetric models. In any case, neglecting internal losses is not a serious deficiency, since radiation losses dominate.

The following table, which includes the two-dimensional model and the manufacturer's measured values, summarizes some characteristics of each mesh along with the maximum sound pressure level (SPL) in dB re $1\mu\text{Pa}$ at a distance of 1m on the acoustic axis when driven by 3000 Vrms at the corresponding frequency.

TABLE 3

Mesh	Coarse	Refined	More Refined	2-D Model	Measured
Nodes	392	972	1696	825	xxxx
Elements	140	360	706	285	xxxx
DOF	557	1501	2868	1026	xxxx
Micro Vax II CPU time	3 hrs	33 hrs	101 hrs	48 min	xxxx
SPL dB re 1 μ Pa	200	209	217	213	213
Frequency Hz	1108	662	610	628	610

The following plot depicts the transmitting voltage response curve obtained by ATILA along with the corresponding manufacturer's data. The model displays a higher peak sound pressure level (SPL) for the primary resonance than the actual transducer. This was expected, since internal material losses were not considered.

It can be observed also from FIG. 11 that the second resonance of the model occurs at a considerably higher frequency than for the actual device. As discussed before, the probable explanation for this is that even the most refined

mesh used is not refined enough to represent the transducer dynamical behavior completely. This is in part due to the clamped condition between the shell and the piezoelectric ring, which is not quite right.

Notice in Table 3 that as the mesh becomes more and more refined, the SPL and resonant frequency values approach more closely the corresponding measured values. An attempt was made to perform a harmonic analysis using a mesh which was more refined (4184 DOF). This was not successful, however; apparently the number of degrees-of-freedom exceeded the limit imposed by our copy of ATILA.

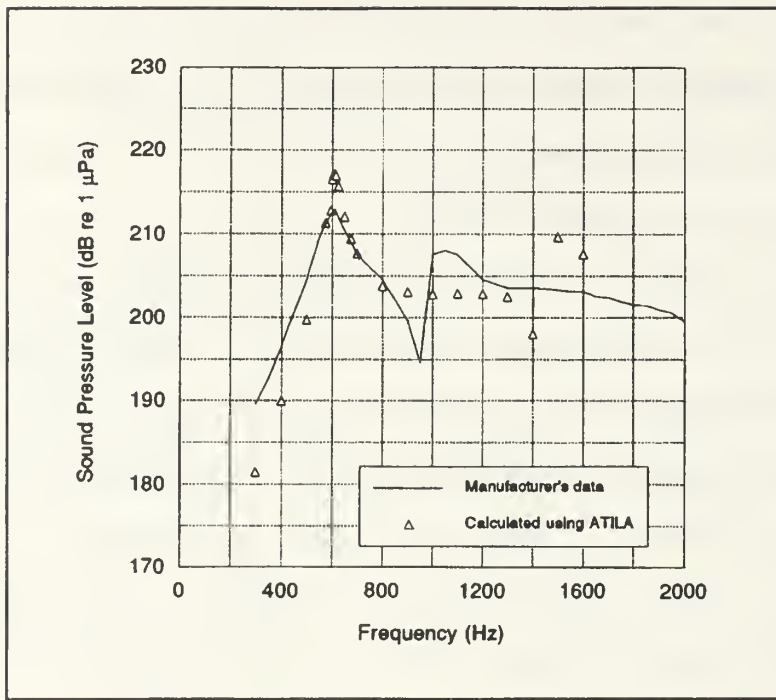


Figure 11 Transmitting voltage response curve at 1m on acoustic axis driven at 3000 Vrms.

Plots of electrical impedance versus frequency and impedance circle for the more refined model are depicted in Figs. 12 and 13, respectively. Finally, electrical admittance versus frequency and the admittance circle are shown in Figs. 14 and 15, respectively.

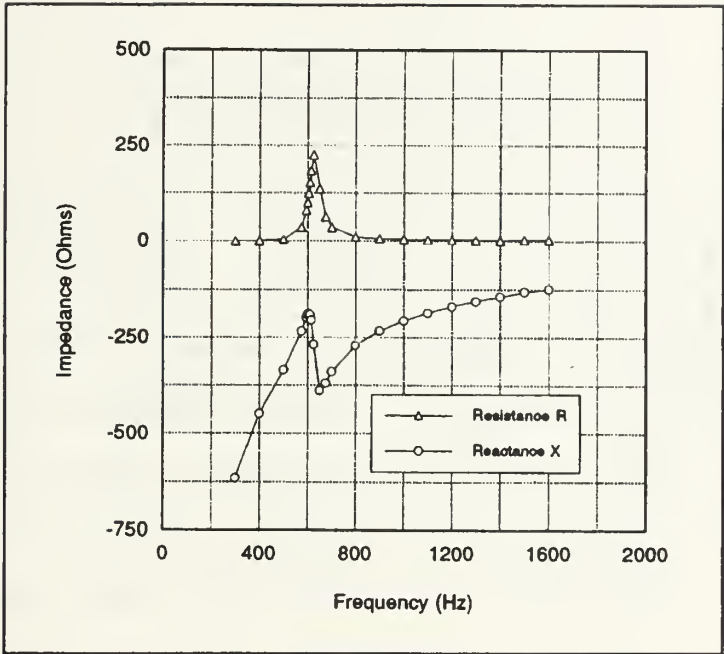


Figure 12 Impedance versus frequency.

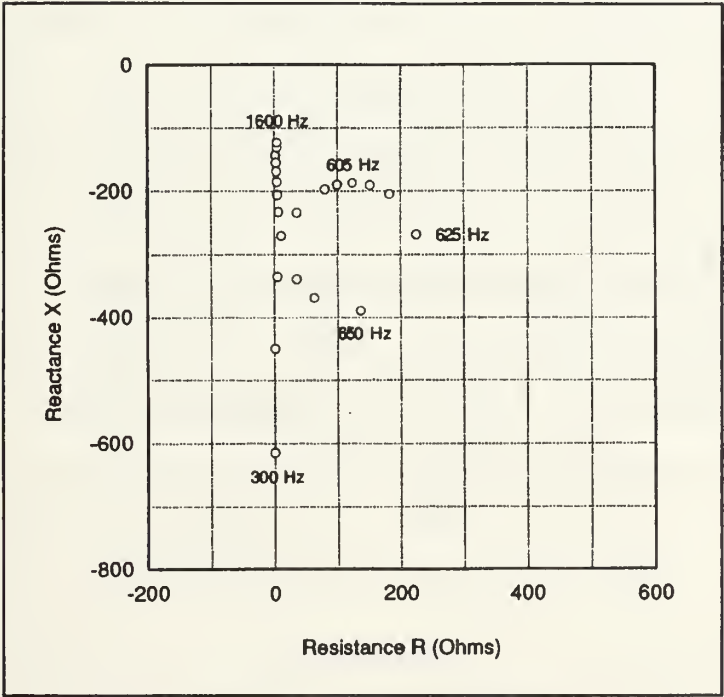


Figure 13 Impedance circle.

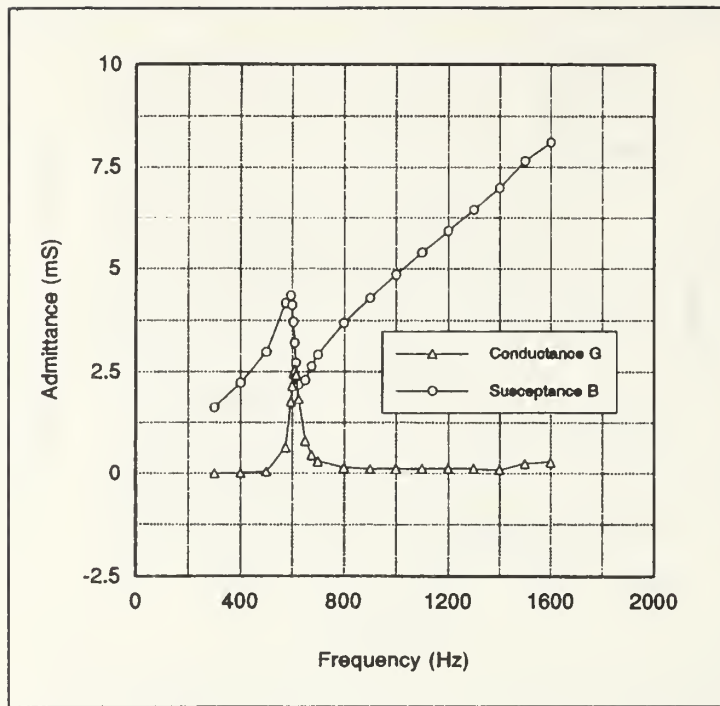


Figure 14 Admittance versus frequency.

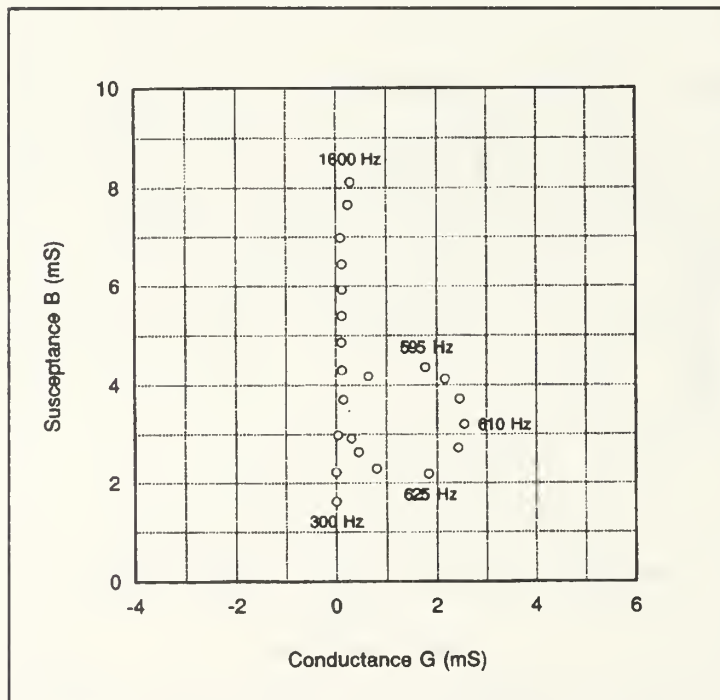


Figure 15 Admittance circle.

VI. CONCLUSIONS

A three-dimensional model of a ring-shell flextensional transducer was built. Although the model includes many necessary simplifications to handle the problem in the available MICROVAX VMS system, the model is successful in obtaining a maximum sound pressure level from the in-water harmonic analyses that differs by 4 dB from the measured value and is located exactly at the same frequency.

The model does not consider internal material losses because the ATILA code was not able to compute accurate results for the three-dimensional model in this case. These difficulties were not encountered with axisymmetric models.

The model was built for the purpose of computing the radiation and scattering properties of the Sparton ring-shell transducer, the results of which are to be combined with an acoustic field model in order to describe the performance of a dense sonar array. Thus far the model has been used to compute the radiation pressure field. It will be used to compute the scattered pressure field when this capability becomes available in ATILA.

APPENDIX A

INPUT DATA FILE

* TRANSDUCER:RINGSHELL / TWO STEP REFINED THREE-DIMENSIONAL MESH.

*

=====

* MANUFACTURER:SPARTON OF CANADA. *

* MODEL:34A0610. *

* IN-WATER HARMONIC ANALYSIS. *

* WRITTEN BY LCDR ROGERIO PINTO ON NOV,30,1992. *

=====

*

SKYLINE REAL

PRECISION DOUBLE

RADIATION DIPOLAR

LCPDDC

10 ELECPOT PRESSURE THETAX THETAY UX UY UZ

NLOAD

40

FREQUENCY

1.100E+03 1.200E+03 1.300E+03 1.400E+03 1.500E+03 1.600E+03

ANALYSIS HARMONIC

MATERIAL

MAVART8D

```

0.00000E+00 0.00000E+00 0.75500E+04 0.00000E+00 0.00000E+00 0.00000E+00&
0.82020E-11-0.35380E-11-0.27030E-11 0.00000E+00 0.00000E+00 0.00000E+00&
-0.35380E-11 0.11990E-10-0.35380E-11 0.00000E+00 0.00000E+00 0.00000E+00&
-0.27030E-11-0.35380E-11 0.82020E-11 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.26000E-10 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.21800E-10 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.26000E-10&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00-0.28110E-09&
0.00000E+00 0.00000E+00 0.00000E+00-0.28110E-09 0.00000E+00 0.00000E+00&
-0.10000E-09 0.21390E-09-0.10000E-09 0.00000E+00 0.00000E+00 0.00000E+00&
0.11480E-07 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.11480E-07 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.11480E-07 0.00000E+00 0.00000E+00 0.00000E+00&
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0.14152E-12-0.47960E-12 0.14152E-12 0.00000E+00 0.00000E+00 0.00000E+00&
0.10812E-12 0.14152E-12-0.14152E-12 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00-0.10400E-11 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00-0.87200E-11 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00-0.10400E-11&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
-0.45920E-12 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00-0.45920E-12 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00&
0.00000E+00 0.00000E+00-0.45920E-12 0.00000E+00 0.00000E+00 0.00000E+00

```

ST4340

```

0.100E+01 0.195E+12 0.280E+00 0.770E+04 0.000E+00 0.100E+01 &
0.195E+12 0.280E+00 0.770E+04

```

FICFIBER

```

0.645E+09 0.400E+00 0.806E+04

```

GEOMETRY

1

```

0.105E-01 *THICKNESS OF SHELLS.

```

2

```

0.500E-02 *THICKNESS OF FICTICIOUS FIBER WRAPPING.

```

3

```

0.720E+00 *RADIUS OF FLUID MESH OUTER LIMIT.

```

GEOMETRY POLARIZA CARTESIA

4	0.000E+00	0.000E+00	0.180E+03
5	0.000E+00	0.000E+00	0.210E+03
6	0.000E+00	0.000E+00	0.240E+03
7	0.000E+00	0.000E+00	0.270E+03
8	0.000E+00	0.000E+00	0.300E+03
9	0.000E+00	0.000E+00	0.330E+03
10	0.000E+00	0.000E+00	0.000E+00
11	0.000E+00	0.000E+00	0.030E+03
12	0.000E+00	0.000E+00	0.060E+03
13	0.000E+00	0.000E+00	0.090E+03
14	0.000E+00	0.000E+00	0.120E+03
15	0.000E+00	0.000E+00	0.150E+03

NODES

*	1	*	-0.40000E-01	-0.39900E+00	0.00000E+00
*	2	*	-0.40000E-01	-0.37841E+00	-0.11241E+00
*	3	*	-0.40000E-01	-0.33946E+00	-0.20646E+00
*	4	*	-0.40000E-01	-0.28214E+00	-0.28214E+00
*	5	*	-0.40000E-01	-0.20646E+00	-0.33946E+00
*	6	*	-0.40000E-01	-0.11241E+00	-0.37841E+00
*	7	*	-0.40000E-01	0.00000E+00	-0.39900E+00
*	8	*	-0.40000E-01	-0.37679E+00	0.00000E+00
*	9	*	-0.40000E-01	-0.32056E+00	-0.19497E+00
*	10	*	-0.40000E-01	-0.19497E+00	-0.32056E+00
*	11	*	-0.40000E-01	0.00000E+00	-0.37679E+00
*	12	*	-0.40000E-01	-0.35458E+00	0.00000E+00
*	13	*	-0.40000E-01	-0.33628E+00	-0.99897E-01
*	14	*	-0.40000E-01	-0.30167E+00	-0.18347E+00
*	15	*	-0.40000E-01	-0.25073E+00	-0.25073E+00
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*	17	*	-0.40000E-01	-0.99897E-01	-0.33628E+00
*	18	*	-0.40000E-01	0.00000E+00	-0.35458E+00
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*	21	*	0.00000E+00	-0.20646E+00	-0.33946E+00
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*	28	*	0.40000E-01	-0.37841E+00	-0.11241E+00
*	29	*	0.40000E-01	-0.33946E+00	-0.20646E+00
*	30	*	0.40000E-01	-0.28214E+00	-0.28214E+00
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*	32	*	0.40000E-01	-0.11241E+00	-0.37841E+00
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*	36	*	0.40000E-01	-0.19497E+00	-0.32056E+00
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*	38	*	0.40000E-01	-0.35458E+00	0.00000E+00
*	39	*	0.40000E-01	-0.33628E+00	-0.99897E-01
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*	41	*	0.40000E-01	-0.25073E+00	-0.25073E+00
*	42	*	0.40000E-01	-0.18347E+00	-0.30167E+00

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*	51	*	-0.40000E-01	-0.27140E+00	-0.16506E+00
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*	63	*	0.40000E-01	0.00000E+00	-0.33679E+00
*	64	*	0.40000E-01	-0.31900E+00	0.00000E+00
*	65	*	0.40000E-01	-0.30254E+00	-0.89872E-01
*	66	*	0.40000E-01	-0.27140E+00	-0.16506E+00
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*	83	*	-0.40000E-01	0.30167E+00	-0.18347E+00
*	84	*	-0.40000E-01	0.33628E+00	-0.99897E-01
*	85	*	-0.40000E-01	0.35458E+00	0.00000E+00
*	86	*	0.00000E+00	0.20646E+00	-0.33946E+00
*	87	*	0.00000E+00	0.33946E+00	-0.20646E+00
*	88	*	0.00000E+00	0.39900E+00	0.00000E+00
*	89	*	0.00000E+00	0.18347E+00	-0.30167E+00
*	90	*	0.00000E+00	0.30167E+00	-0.18347E+00
*	91	*	0.00000E+00	0.35458E+00	0.00000E+00
*	92	*	0.40000E-01	0.11241E+00	-0.37841E+00
*	93	*	0.40000E-01	0.20646E+00	-0.33946E+00
*	94	*	0.40000E-01	0.28214E+00	-0.28214E+00
*	95	*	0.40000E-01	0.33946E+00	-0.20646E+00
*	96	*	0.40000E-01	0.37841E+00	-0.11241E+00
*	97	*	0.40000E-01	0.39900E+00	0.00000E+00
*	98	*	0.40000E-01	0.19497E+00	-0.32056E+00
*	99	*	0.40000E-01	0.32056E+00	-0.19497E+00
*	100	*	0.40000E-01	0.37679E+00	0.00000E+00
*	101	*	0.40000E-01	0.99897E-01	-0.33628E+00
*	102	*	0.40000E-01	0.18347E+00	-0.30167E+00
*	103	*	0.40000E-01	0.25073E+00	-0.25073E+00
*	104	*	0.40000E-01	0.30167E+00	-0.18347E+00
*	105	*	0.40000E-01	0.33628E+00	-0.99897E-01
*	106	*	0.40000E-01	0.35458E+00	0.00000E+00
*	107	*	-0.40000E-01	0.17427E+00	-0.28653E+00
*	108	*	-0.40000E-01	0.28653E+00	-0.17427E+00
*	109	*	-0.40000E-01	0.33679E+00	0.00000E+00
*	110	*	-0.40000E-01	0.89872E-01	-0.30254E+00
*	111	*	-0.40000E-01	0.16506E+00	-0.27140E+00

*	112	*	-0.40000E-01	0.22557E+00	-0.22557E+00
*	113	*	-0.40000E-01	0.27140E+00	-0.16506E+00
*	114	*	-0.40000E-01	0.30254E+00	-0.89872E-01
*	115	*	-0.40000E-01	0.31900E+00	0.00000E+00
*	116	*	0.00000E+00	0.16506E+00	-0.27140E+00
*	117	*	0.00000E+00	0.27140E+00	-0.16506E+00
*	118	*	0.00000E+00	0.31900E+00	0.00000E+00
*	119	*	0.40000E-01	0.17427E+00	-0.28653E+00
*	120	*	0.40000E-01	0.28653E+00	-0.17427E+00
*	121	*	0.40000E-01	0.33679E+00	0.00000E+00
*	122	*	0.40000E-01	0.89872E-01	-0.30254E+00
*	123	*	0.40000E-01	0.16506E+00	-0.27140E+00
*	124	*	0.40000E-01	0.22557E+00	-0.22557E+00
*	125	*	0.40000E-01	0.27140E+00	-0.16506E+00
*	126	*	0.40000E-01	0.30254E+00	-0.89872E-01
*	127	*	0.40000E-01	0.31900E+00	0.00000E+00
*	128	*	-0.40000E-01	0.37841E+00	0.11241E+00
*	129	*	-0.40000E-01	0.33946E+00	0.20646E+00
*	130	*	-0.40000E-01	0.28214E+00	0.28214E+00
*	131	*	-0.40000E-01	0.20646E+00	0.33946E+00
*	132	*	-0.40000E-01	0.11241E+00	0.37841E+00
*	133	*	-0.40000E-01	0.00000E+00	0.39900E+00
*	134	*	-0.40000E-01	0.32056E+00	0.19497E+00
*	135	*	-0.40000E-01	0.19497E+00	0.32056E+00
*	136	*	-0.40000E-01	0.00000E+00	0.37679E+00
*	137	*	-0.40000E-01	0.33628E+00	0.99897E-01
*	138	*	-0.40000E-01	0.30167E+00	0.18347E+00
*	139	*	-0.40000E-01	0.25073E+00	0.25073E+00
*	140	*	-0.40000E-01	0.18347E+00	0.30167E+00
*	141	*	-0.40000E-01	0.99897E-01	0.33628E+00
*	142	*	-0.40000E-01	0.00000E+00	0.35458E+00
*	143	*	0.00000E+00	0.33946E+00	0.20646E+00
*	144	*	0.00000E+00	0.20646E+00	0.33946E+00
*	145	*	0.00000E+00	0.00000E+00	0.39900E+00
*	146	*	0.00000E+00	0.30167E+00	0.18347E+00
*	147	*	0.00000E+00	0.18347E+00	0.30167E+00
*	148	*	0.00000E+00	0.00000E+00	0.35458E+00
*	149	*	0.40000E-01	0.37841E+00	0.11241E+00
*	150	*	0.40000E-01	0.33946E+00	0.20646E+00
*	151	*	0.40000E-01	0.28214E+00	0.28214E+00
*	152	*	0.40000E-01	0.20646E+00	0.33946E+00
*	153	*	0.40000E-01	0.11241E+00	0.37841E+00
*	154	*	0.40000E-01	0.00000E+00	0.39900E+00
*	155	*	0.40000E-01	0.32056E+00	0.19497E+00
*	156	*	0.40000E-01	0.19497E+00	0.32056E+00
*	157	*	0.40000E-01	0.00000E+00	0.37679E+00
*	158	*	0.40000E-01	0.33628E+00	0.99897E-01
*	159	*	0.40000E-01	0.30167E+00	0.18347E+00
*	160	*	0.40000E-01	0.25073E+00	0.25073E+00
*	161	*	0.40000E-01	0.18347E+00	0.30167E+00
*	162	*	0.40000E-01	0.99897E-01	0.33628E+00
*	163	*	0.40000E-01	0.00000E+00	0.35458E+00
*	164	*	-0.40000E-01	0.28653E+00	0.17427E+00
*	165	*	-0.40000E-01	0.17427E+00	0.28653E+00
*	166	*	-0.40000E-01	0.00000E+00	0.33679E+00
*	167	*	-0.40000E-01	0.30254E+00	0.89872E-01
*	168	*	-0.40000E-01	0.27140E+00	0.16506E+00
*	169	*	-0.40000E-01	0.22557E+00	0.22557E+00
*	170	*	-0.40000E-01	0.16506E+00	0.27140E+00
*	171	*	-0.40000E-01	0.89872E-01	0.30254E+00
*	172	*	-0.40000E-01	0.00000E+00	0.31900E+00
*	173	*	0.00000E+00	0.27140E+00	0.16506E+00
*	174	*	0.00000E+00	0.16506E+00	0.27140E+00
*	175	*	0.00000E+00	0.00000E+00	0.31900E+00
*	176	*	0.40000E-01	0.28653E+00	0.17427E+00
*	177	*	0.40000E-01	0.17427E+00	0.28653E+00
*	178	*	0.40000E-01	0.00000E+00	0.33679E+00
*	179	*	0.40000E-01	0.30254E+00	0.89872E-01
*	180	*	0.40000E-01	0.27140E+00	0.16506E+00

*	181	*	0.40000E-01	0.22557E+00	0.22557E+00
*	182	*	0.40000E-01	0.16506E+00	0.27140E+00
*	183	*	0.40000E-01	0.89872E-01	0.30254E+00
*	184	*	0.40000E-01	0.00000E+00	0.31900E+00
*	185	*	-0.40000E-01	-0.11241E+00	0.37841E+00
*	186	*	-0.40000E-01	-0.20646E+00	0.33946E+00
*	187	*	-0.40000E-01	-0.28214E+00	0.28214E+00
*	188	*	-0.40000E-01	-0.33946E+00	0.20646E+00
*	189	*	-0.40000E-01	-0.37841E+00	0.11241E+00
*	190	*	-0.40000E-01	-0.19497E+00	0.32056E+00
*	191	*	-0.40000E-01	-0.32056E+00	0.19497E+00
*	192	*	-0.40000E-01	-0.99897E-01	0.33628E+00
*	193	*	-0.40000E-01	-0.18347E+00	0.30167E+00
*	194	*	-0.40000E-01	-0.25073E+00	0.25073E+00
*	195	*	-0.40000E-01	-0.30167E+00	0.18347E+00
*	196	*	-0.40000E-01	-0.33628E+00	0.99897E-01
*	197	*	0.00000E+00	-0.20646E+00	0.33946E+00
*	198	*	0.00000E+00	-0.33946E+00	0.20646E+00
*	199	*	0.00000E+00	-0.18347E+00	0.30167E+00
*	200	*	0.00000E+00	-0.30167E+00	0.18347E+00
*	201	*	0.40000E-01	-0.11241E+00	0.37841E+00
*	202	*	0.40000E-01	-0.20646E+00	0.33946E+00
*	203	*	0.40000E-01	-0.28214E+00	0.28214E+00
*	204	*	0.40000E-01	-0.33946E+00	0.20646E+00
*	205	*	0.40000E-01	-0.37841E+00	0.11241E+00
*	206	*	0.40000E-01	-0.19497E+00	0.32056E+00
*	207	*	0.40000E-01	-0.32056E+00	0.19497E+00
*	208	*	0.40000E-01	-0.99897E-01	0.33628E+00
*	209	*	0.40000E-01	-0.18347E+00	0.30167E+00
*	210	*	0.40000E-01	-0.25073E+00	0.25073E+00
*	211	*	0.40000E-01	-0.30167E+00	0.18347E+00
*	212	*	0.40000E-01	-0.33628E+00	0.99897E-01
*	213	*	-0.40000E-01	-0.17427E+00	0.28653E+00
*	214	*	-0.40000E-01	-0.28653E+00	0.17427E+00
*	215	*	-0.40000E-01	-0.89872E-01	0.30254E+00
*	216	*	-0.40000E-01	-0.16506E+00	0.27140E+00
*	217	*	-0.40000E-01	-0.22557E+00	0.22557E+00
*	218	*	-0.40000E-01	-0.27140E+00	0.16506E+00
*	219	*	-0.40000E-01	-0.30254E+00	0.89872E-01
*	220	*	0.00000E+00	-0.16506E+00	0.27140E+00
*	221	*	0.00000E+00	-0.27140E+00	0.16506E+00
*	222	*	0.40000E-01	-0.17427E+00	0.28653E+00
*	223	*	0.40000E-01	-0.28653E+00	0.17427E+00
*	224	*	0.40000E-01	-0.89872E-01	0.30254E+00
*	225	*	0.40000E-01	-0.16506E+00	0.27140E+00
*	226	*	0.40000E-01	-0.22557E+00	0.22557E+00
*	227	*	0.40000E-01	-0.27140E+00	0.16506E+00
*	228	*	0.40000E-01	-0.30254E+00	0.89872E-01
*	229	*	0.69986E-01	-0.30439E+00	0.00000E+00
*	230	*	0.69986E-01	-0.27616E+00	-0.93519E-01
*	231	*	0.69986E-01	-0.23160E+00	-0.17072E+00
*	232	*	0.69986E-01	-0.17072E+00	-0.23160E+00
*	233	*	0.69986E-01	-0.93519E-01	-0.27616E+00
*	234	*	0.69986E-01	0.00000E+00	-0.30439E+00
*	235	*	0.94876E-01	-0.25064E+00	0.00000E+00
*	236	*	0.94876E-01	-0.21246E+00	-0.87141E-01
*	237	*	0.94876E-01	-0.15796E+00	-0.15796E+00
*	238	*	0.94876E-01	-0.87141E-01	-0.21246E+00
*	239	*	0.94876E-01	0.00000E+00	-0.25064E+00
*	240	*	0.11467E+00	-0.19333E+00	0.00000E+00
*	241	*	0.11467E+00	-0.14521E+00	-0.80763E-01
*	242	*	0.11467E+00	-0.80763E-01	-0.14521E+00
*	243	*	0.11467E+00	0.00000E+00	-0.19333E+00
*	244	*	0.12937E+00	-0.13245E+00	0.00000E+00
*	245	*	0.12937E+00	-0.74386E-01	-0.74386E-01
*	246	*	0.12937E+00	0.00000E+00	-0.13245E+00
*	247	*	0.13897E+00	-0.68008E-01	0.00000E+00
*	248	*	0.13897E+00	0.00000E+00	-0.68008E-01
*	249	*	0.14348E+00	0.00000E+00	0.00000E+00

*	250	*	0.69986E-01	0.93519E-01	-0.27616E+00
*	251	*	0.69986E-01	0.17072E+00	-0.23160E+00
*	252	*	0.69986E-01	0.23160E+00	-0.17072E+00
*	253	*	0.69986E-01	0.27616E+00	-0.93519E-01
*	254	*	0.69986E-01	0.30439E+00	0.00000E+00
*	255	*	0.94876E-01	0.87141E-01	-0.21246E+00
*	256	*	0.94876E-01	0.15796E+00	-0.15796E+00
*	257	*	0.94876E-01	0.21246E+00	-0.87141E-01
*	258	*	0.94876E-01	0.25064E+00	0.00000E+00
*	259	*	0.11467E+00	0.80763E-01	-0.14521E+00
*	260	*	0.11467E+00	0.14521E+00	-0.80763E-01
*	261	*	0.11467E+00	0.19333E+00	0.00000E+00
*	262	*	0.12937E+00	0.74386E-01	-0.74386E-01
*	263	*	0.12937E+00	0.13245E+00	0.00000E+00
*	264	*	0.13897E+00	0.68008E-01	0.00000E+00
*	265	*	0.69986E-01	0.27616E+00	0.93519E-01
*	266	*	0.69986E-01	0.23160E+00	0.17072E+00
*	267	*	0.69986E-01	0.17072E+00	0.23160E+00
*	268	*	0.69986E-01	0.93519E-01	0.27616E+00
*	269	*	0.69986E-01	0.00000E+00	0.30439E+00
*	270	*	0.94876E-01	0.21246E+00	0.87141E-01
*	271	*	0.94876E-01	0.15796E+00	0.15796E+00
*	272	*	0.94876E-01	0.87141E-01	0.21246E+00
*	273	*	0.94876E-01	0.00000E+00	0.25064E+00
*	274	*	0.11467E+00	0.14521E+00	0.80763E-01
*	275	*	0.11467E+00	0.80763E-01	0.14521E+00
*	276	*	0.11467E+00	0.00000E+00	0.19333E+00
*	277	*	0.12937E+00	0.74386E-01	0.74386E-01
*	278	*	0.12937E+00	0.00000E+00	0.13245E+00
*	279	*	0.13897E+00	0.00000E+00	0.68008E-01
*	280	*	0.69986E-01	-0.93519E-01	0.27616E+00
*	281	*	0.69986E-01	-0.17072E+00	0.23160E+00
*	282	*	0.69986E-01	-0.23160E+00	0.17072E+00
*	283	*	0.69986E-01	-0.27616E+00	0.93519E-01
*	284	*	0.94876E-01	-0.87141E-01	0.21246E+00
*	285	*	0.94876E-01	-0.15796E+00	0.15796E+00
*	286	*	0.94876E-01	-0.21246E+00	0.87141E-01
*	287	*	0.11467E+00	-0.80763E-01	0.14521E+00
*	288	*	0.11467E+00	-0.14521E+00	0.80763E-01
*	289	*	0.12937E+00	-0.74386E-01	0.74386E-01
*	290	*	-0.69986E-01	-0.30439E+00	0.00000E+00
*	291	*	-0.69986E-01	-0.27616E+00	-0.93519E-01
*	292	*	-0.69986E-01	-0.23160E+00	-0.17072E+00
*	293	*	-0.69986E-01	-0.17072E+00	-0.23160E+00
*	294	*	-0.69986E-01	-0.93519E-01	-0.27616E+00
*	295	*	-0.69986E-01	0.00000E+00	-0.30439E+00
*	296	*	-0.94876E-01	-0.25064E+00	0.00000E+00
*	297	*	-0.94876E-01	-0.21246E+00	-0.87141E-01
*	298	*	-0.94876E-01	-0.15796E+00	-0.15796E+00
*	299	*	-0.94876E-01	-0.87141E-01	-0.21246E+00
*	300	*	-0.94876E-01	0.00000E+00	-0.25064E+00
*	301	*	-0.11467E+00	-0.19333E+00	0.00000E+00
*	302	*	-0.11467E+00	-0.14521E+00	-0.80763E-01
*	303	*	-0.11467E+00	-0.80763E-01	-0.14521E+00
*	304	*	-0.11467E+00	0.00000E+00	-0.19333E+00
*	305	*	-0.12937E+00	-0.13245E+00	0.00000E+00
*	306	*	-0.12937E+00	-0.74386E-01	-0.74386E-01
*	307	*	-0.12937E+00	0.00000E+00	-0.13245E+00
*	308	*	-0.13897E+00	-0.68008E-01	0.00000E+00
*	309	*	-0.13897E+00	0.00000E+00	-0.68008E-01
*	310	*	-0.14348E+00	0.00000E+00	0.00000E+00
*	311	*	-0.69986E-01	0.93519E-01	-0.27616E+00
*	312	*	-0.69986E-01	0.17072E+00	-0.23160E+00
*	313	*	-0.69986E-01	0.23160E+00	-0.17072E+00
*	314	*	-0.69986E-01	0.27616E+00	-0.93519E-01
*	315	*	-0.69986E-01	0.30439E+00	0.00000E+00
*	316	*	-0.94876E-01	0.87141E-01	-0.21246E+00
*	317	*	-0.94876E-01	0.15796E+00	-0.15796E+00
*	318	*	-0.94876E-01	0.21246E+00	-0.87141E-01

*	319	*	-0.94876E-01	0.25064E+00	0.00000E+00
*	320	*	-0.11467E+00	0.80763E-01	-0.14521E+00
*	321	*	-0.11467E+00	0.14521E+00	-0.80763E-01
*	322	*	-0.11467E+00	0.19333E+00	0.00000E+00
*	323	*	-0.12937E+00	0.74386E-01	-0.74386E-01
*	324	*	-0.12937E+00	0.13245E+00	0.00000E+00
*	325	*	-0.13897E+00	0.68008E-01	0.00000E+00
*	326	*	-0.69986E-01	0.27616E+00	0.93519E-01
*	327	*	-0.69986E-01	0.23160E+00	0.17072E+00
*	328	*	-0.69986E-01	0.17072E+00	0.23160E+00
*	329	*	-0.69986E-01	0.93519E-01	0.27616E+00
*	330	*	-0.69986E-01	0.00000E+00	0.30439E+00
*	331	*	-0.94876E-01	0.21246E+00	0.87141E-01
*	332	*	-0.94876E-01	0.15796E+00	0.15796E+00
*	333	*	-0.94876E-01	0.87141E-01	0.21246E+00
*	334	*	-0.94876E-01	0.00000E+00	0.25064E+00
*	335	*	-0.11467E+00	0.14521E+00	0.80763E-01
*	336	*	-0.11467E+00	0.80763E-01	0.14521E+00
*	337	*	-0.11467E+00	0.00000E+00	0.19333E+00
*	338	*	-0.12937E+00	0.74386E-01	0.74386E-01
*	339	*	-0.12937E+00	0.00000E+00	0.13245E+00
*	340	*	-0.13897E+00	0.00000E+00	0.68008E-01
*	341	*	-0.69986E-01	-0.93519E-01	0.27616E+00
*	342	*	-0.69986E-01	-0.17072E+00	0.23160E+00
*	343	*	-0.69986E-01	-0.23160E+00	0.17072E+00
*	344	*	-0.69986E-01	-0.27616E+00	0.93519E-01
*	345	*	-0.94876E-01	-0.87141E-01	0.21246E+00
*	346	*	-0.94876E-01	-0.15796E+00	0.15796E+00
*	347	*	-0.94876E-01	-0.21246E+00	0.87141E-01
*	348	*	-0.11467E+00	-0.80763E-01	0.14521E+00
*	349	*	-0.11467E+00	-0.14521E+00	0.80763E-01
*	350	*	-0.12937E+00	-0.74386E-01	0.74386E-01
*	351	*	-0.14348E+00	0.00000E+00	0.00000E+00
*	352	*	0.14348E+00	0.00000E+00	0.00000E+00
*	353	*	-0.13897E+00	0.00000E+00	-0.68008E-01
*	354	*	0.13897E+00	0.00000E+00	-0.68008E-01
*	355	*	-0.13897E+00	0.68008E-01	0.00000E+00
*	356	*	0.13897E+00	0.68008E-01	0.00000E+00
*	357	*	-0.13897E+00	-0.68008E-01	0.00000E+00
*	358	*	0.13897E+00	-0.68008E-01	0.00000E+00
*	359	*	-0.13897E+00	0.00000E+00	0.68008E-01
*	360	*	0.13897E+00	0.00000E+00	0.68008E-01
*	361	*	-0.12937E+00	0.74386E-01	-0.74386E-01
*	362	*	0.12937E+00	0.74386E-01	-0.74386E-01
*	363	*	-0.12937E+00	-0.74386E-01	-0.74386E-01
*	364	*	0.12937E+00	-0.74386E-01	-0.74386E-01
*	365	*	-0.12937E+00	0.74386E-01	0.74386E-01
*	366	*	0.12937E+00	0.74386E-01	0.74386E-01
*	367	*	-0.12937E+00	-0.74386E-01	0.74386E-01
*	368	*	0.12937E+00	-0.74386E-01	0.74386E-01
*	369	*	-0.12937E+00	0.00000E+00	-0.13245E+00
*	370	*	0.12937E+00	0.00000E+00	-0.13245E+00
*	371	*	-0.12937E+00	0.13245E+00	0.00000E+00
*	372	*	0.12937E+00	0.13245E+00	0.00000E+00
*	373	*	-0.12937E+00	-0.13245E+00	0.00000E+00
*	374	*	0.12937E+00	-0.13245E+00	0.00000E+00
*	375	*	-0.12937E+00	0.00000E+00	0.13245E+00
*	376	*	0.12937E+00	0.00000E+00	0.13245E+00
*	377	*	-0.11467E+00	0.80763E-01	-0.14521E+00
*	378	*	0.11467E+00	0.80763E-01	-0.14521E+00
*	379	*	-0.11467E+00	-0.80763E-01	-0.14521E+00
*	380	*	0.11467E+00	-0.80763E-01	-0.14521E+00
*	381	*	-0.11467E+00	0.14521E+00	-0.80763E-01
*	382	*	0.11467E+00	0.14521E+00	-0.80763E-01
*	383	*	-0.11467E+00	-0.14521E+00	-0.80763E-01
*	384	*	0.11467E+00	-0.14521E+00	-0.80763E-01
*	385	*	-0.11467E+00	0.14521E+00	0.80763E-01
*	386	*	0.11467E+00	0.14521E+00	0.80763E-01
*	387	*	-0.11467E+00	-0.14521E+00	0.80763E-01

*	388	*	0.11467E+00	-0.14521E+00	0.80763E-01
*	389	*	-0.11467E+00	0.80763E-01	0.14521E+00
*	390	*	0.11467E+00	0.80763E-01	0.14521E+00
*	391	*	-0.11467E+00	-0.80763E-01	0.14521E+00
*	392	*	0.11467E+00	-0.80763E-01	0.14521E+00
*	393	*	-0.11467E+00	0.00000E+00	-0.19333E+00
*	394	*	0.11467E+00	0.00000E+00	-0.19333E+00
*	395	*	-0.11467E+00	0.19333E+00	0.00000E+00
*	396	*	0.11467E+00	0.19333E+00	0.00000E+00
*	397	*	-0.11467E+00	-0.19333E+00	0.00000E+00
*	398	*	0.11467E+00	-0.19333E+00	0.00000E+00
*	399	*	-0.11467E+00	0.00000E+00	0.19333E+00
*	400	*	0.11467E+00	0.00000E+00	0.19333E+00
*	401	*	-0.24011E+00	0.00000E+00	0.00000E+00
*	402	*	0.24011E+00	0.00000E+00	0.00000E+00
*	403	*	-0.94876E-01	0.15796E+00	-0.15796E+00
*	404	*	0.94876E-01	0.15796E+00	-0.15796E+00
*	405	*	-0.94876E-01	-0.15796E+00	-0.15796E+00
*	406	*	0.94876E-01	-0.15796E+00	-0.15796E+00
*	407	*	-0.94876E-01	0.15796E+00	0.15796E+00
*	408	*	0.94876E-01	0.15796E+00	0.15796E+00
*	409	*	-0.94876E-01	-0.15796E+00	0.15796E+00
*	410	*	0.94876E-01	-0.15796E+00	0.15796E+00
*	411	*	-0.94876E-01	0.87141E-01	-0.21246E+00
*	412	*	0.94876E-01	0.87141E-01	-0.21246E+00
*	413	*	-0.94876E-01	-0.87141E-01	-0.21246E+00
*	414	*	0.94876E-01	-0.87141E-01	-0.21246E+00
*	415	*	-0.94876E-01	0.21246E+00	-0.87141E-01
*	416	*	0.94876E-01	0.21246E+00	-0.87141E-01
*	417	*	-0.94876E-01	-0.21246E+00	-0.87141E-01
*	418	*	0.94876E-01	-0.21246E+00	-0.87141E-01
*	419	*	-0.94876E-01	0.21246E+00	0.87141E-01
*	420	*	0.94876E-01	0.21246E+00	0.87141E-01
*	421	*	-0.94876E-01	-0.21246E+00	0.87141E-01
*	422	*	0.94876E-01	-0.21246E+00	0.87141E-01
*	423	*	-0.94876E-01	0.87141E-01	0.21246E+00
*	424	*	0.94876E-01	0.87141E-01	0.21246E+00
*	425	*	-0.94876E-01	-0.87141E-01	0.21246E+00
*	426	*	0.94876E-01	-0.87141E-01	0.21246E+00
*	427	*	-0.22519E+00	0.00000E+00	-0.13245E+00
*	428	*	0.22519E+00	0.00000E+00	-0.13245E+00
*	429	*	-0.22519E+00	0.13245E+00	0.00000E+00
*	430	*	0.22519E+00	0.13245E+00	0.00000E+00
*	431	*	-0.22519E+00	-0.13245E+00	0.00000E+00
*	432	*	0.22519E+00	-0.13245E+00	0.00000E+00
*	433	*	-0.22519E+00	0.00000E+00	0.13245E+00
*	434	*	0.22519E+00	0.00000E+00	0.13245E+00
*	435	*	-0.94876E-01	0.00000E+00	-0.25064E+00
*	436	*	0.94876E-01	0.00000E+00	-0.25064E+00
*	437	*	-0.94876E-01	0.25064E+00	0.00000E+00
*	438	*	0.94876E-01	0.25064E+00	0.00000E+00
*	439	*	-0.94876E-01	-0.25064E+00	0.00000E+00
*	440	*	0.94876E-01	-0.25064E+00	0.00000E+00
*	441	*	-0.94876E-01	0.00000E+00	0.25064E+00
*	442	*	0.94876E-01	0.00000E+00	0.25064E+00
*	443	*	-0.18798E+00	0.15796E+00	-0.15796E+00
*	444	*	0.18798E+00	0.15796E+00	-0.15796E+00
*	445	*	-0.18798E+00	-0.15796E+00	-0.15796E+00
*	446	*	0.18798E+00	-0.15796E+00	-0.15796E+00
*	447	*	-0.18798E+00	0.15796E+00	0.15796E+00
*	448	*	0.18798E+00	0.15796E+00	0.15796E+00
*	449	*	-0.18798E+00	-0.15796E+00	0.15796E+00
*	450	*	0.18798E+00	-0.15796E+00	0.15796E+00
*	451	*	-0.69986E-01	0.17072E+00	-0.23160E+00
*	452	*	0.69986E-01	0.17072E+00	-0.23160E+00
*	453	*	-0.69986E-01	-0.17072E+00	-0.23160E+00
*	454	*	0.69986E-01	-0.17072E+00	-0.23160E+00
*	455	*	-0.69986E-01	0.23160E+00	-0.17072E+00
*	456	*	0.69986E-01	0.23160E+00	-0.17072E+00

*	457	*	-0.69986E-01	-0.23160E+00	-0.17072E+00
*	458	*	0.69986E-01	-0.23160E+00	-0.17072E+00
*	459	*	-0.69986E-01	0.23160E+00	0.17072E+00
*	460	*	0.69986E-01	0.23160E+00	0.17072E+00
*	461	*	-0.69986E-01	-0.23160E+00	0.17072E+00
*	462	*	0.69986E-01	-0.23160E+00	0.17072E+00
*	463	*	-0.69986E-01	0.17072E+00	0.23160E+00
*	464	*	0.69986E-01	0.17072E+00	0.23160E+00
*	465	*	-0.69986E-01	-0.17072E+00	0.23160E+00
*	466	*	0.69986E-01	-0.17072E+00	0.23160E+00
*	467	*	-0.69986E-01	0.93519E-01	-0.27616E+00
*	468	*	0.69986E-01	0.93519E-01	-0.27616E+00
*	469	*	-0.69986E-01	-0.93519E-01	-0.27616E+00
*	470	*	0.69986E-01	-0.93519E-01	-0.27616E+00
*	471	*	-0.69986E-01	0.27616E+00	-0.93519E-01
*	472	*	0.69986E-01	0.27616E+00	-0.93519E-01
*	473	*	-0.69986E-01	-0.27616E+00	-0.93519E-01
*	474	*	0.69986E-01	-0.27616E+00	-0.93519E-01
*	475	*	-0.69986E-01	0.27616E+00	0.93519E-01
*	476	*	0.69986E-01	0.27616E+00	0.93519E-01
*	477	*	-0.69986E-01	-0.27616E+00	0.93519E-01
*	478	*	0.69986E-01	-0.27616E+00	0.93519E-01
*	479	*	-0.69986E-01	0.93519E-01	0.27616E+00
*	480	*	0.69986E-01	0.93519E-01	0.27616E+00
*	481	*	-0.69986E-01	-0.93519E-01	0.27616E+00
*	482	*	0.69986E-01	-0.93519E-01	0.27616E+00
*	483	*	-0.69986E-01	0.00000E+00	-0.30439E+00
*	484	*	0.69986E-01	0.00000E+00	-0.30439E+00
*	485	*	-0.69986E-01	0.30439E+00	0.00000E+00
*	486	*	0.69986E-01	0.30439E+00	0.00000E+00
*	487	*	-0.69986E-01	-0.30439E+00	0.00000E+00
*	488	*	0.69986E-01	-0.30439E+00	0.00000E+00
*	489	*	-0.69986E-01	0.00000E+00	0.30439E+00
*	490	*	0.69986E-01	0.00000E+00	0.30439E+00
*	491	*	-0.18798E+00	0.00000E+00	-0.25064E+00
*	492	*	0.18798E+00	0.00000E+00	-0.25064E+00
*	493	*	-0.18798E+00	0.25064E+00	0.00000E+00
*	494	*	0.18798E+00	0.25064E+00	0.00000E+00
*	495	*	-0.18798E+00	-0.25064E+00	0.00000E+00
*	496	*	0.18798E+00	-0.25064E+00	0.00000E+00
*	497	*	-0.18798E+00	0.00000E+00	0.25064E+00
*	498	*	0.18798E+00	0.00000E+00	0.25064E+00
*	499	*	-0.33674E+00	0.00000E+00	0.00000E+00
*	500	*	0.33674E+00	0.00000E+00	0.00000E+00
*	501	*	-0.32102E+00	0.74386E-01	-0.74386E-01
*	502	*	0.32102E+00	0.74386E-01	-0.74386E-01
*	503	*	-0.32102E+00	-0.74386E-01	-0.74386E-01
*	504	*	0.32102E+00	-0.74386E-01	-0.74386E-01
*	505	*	-0.32102E+00	0.74386E-01	0.74386E-01
*	506	*	0.32102E+00	0.74386E-01	0.74386E-01
*	507	*	-0.32102E+00	-0.74386E-01	0.74386E-01
*	508	*	0.32102E+00	-0.74386E-01	0.74386E-01
*	509	*	-0.33190E+00	0.00000E+00	-0.68008E-01
*	510	*	0.33190E+00	0.00000E+00	-0.68008E-01
*	511	*	-0.33190E+00	0.68008E-01	0.00000E+00
*	512	*	0.33190E+00	0.68008E-01	0.00000E+00
*	513	*	-0.33190E+00	-0.68008E-01	0.00000E+00
*	514	*	0.33190E+00	-0.68008E-01	0.00000E+00
*	515	*	-0.33190E+00	0.00000E+00	0.68008E-01
*	516	*	0.33190E+00	0.00000E+00	0.68008E-01
*	517	*	-0.30408E+00	0.80763E-01	-0.14521E+00
*	518	*	0.30408E+00	0.80763E-01	-0.14521E+00
*	519	*	-0.30408E+00	-0.80763E-01	-0.14521E+00
*	520	*	0.30408E+00	-0.80763E-01	-0.14521E+00
*	521	*	-0.30408E+00	0.14521E+00	-0.80763E-01
*	522	*	0.30408E+00	0.14521E+00	-0.80763E-01
*	523	*	-0.30408E+00	-0.14521E+00	-0.80763E-01
*	524	*	0.30408E+00	-0.14521E+00	-0.80763E-01
*	525	*	-0.30408E+00	0.14521E+00	0.80763E-01

* 526 *	0.30408E+00	0.14521E+00	0.80763E-01
* 527 *	-0.30408E+00	-0.14521E+00	0.80763E-01
* 528 *	0.30408E+00	-0.14521E+00	0.80763E-01
* 529 *	-0.30408E+00	0.80763E-01	0.14521E+00
* 530 *	0.30408E+00	0.80763E-01	0.14521E+00
* 531 *	-0.30408E+00	-0.80763E-01	0.14521E+00
* 532 *	0.30408E+00	-0.80763E-01	0.14521E+00
* 533 *	-0.32102E+00	0.00000E+00	-0.13245E+00
* 534 *	0.32102E+00	0.00000E+00	-0.13245E+00
* 535 *	-0.32102E+00	0.13245E+00	0.00000E+00
* 536 *	0.32102E+00	0.13245E+00	0.00000E+00
* 537 *	-0.32102E+00	-0.13245E+00	0.00000E+00
* 538 *	0.32102E+00	-0.13245E+00	0.00000E+00
* 539 *	-0.32102E+00	0.00000E+00	0.13245E+00
* 540 *	0.32102E+00	0.00000E+00	0.13245E+00
* 541 *	-0.40000E-01	0.99897E-01	-0.33628E+00
* 542 *	0.40000E-01	0.99897E-01	-0.33628E+00
* 543 *	-0.40000E-01	-0.99897E-01	-0.33628E+00
* 544 *	0.40000E-01	-0.99897E-01	-0.33628E+00
* 545 *	-0.40000E-01	0.33628E+00	-0.99897E-01
* 546 *	0.40000E-01	0.33628E+00	-0.99897E-01
* 547 *	-0.40000E-01	-0.33628E+00	-0.99897E-01
* 548 *	0.40000E-01	-0.33628E+00	-0.99897E-01
* 549 *	-0.40000E-01	0.33628E+00	0.99897E-01
* 550 *	0.40000E-01	0.33628E+00	0.99897E-01
* 551 *	-0.40000E-01	-0.33628E+00	0.99897E-01
* 552 *	0.40000E-01	-0.33628E+00	0.99897E-01
* 553 *	-0.40000E-01	0.99897E-01	0.33628E+00
* 554 *	0.40000E-01	0.99897E-01	0.33628E+00
* 555 *	-0.40000E-01	-0.99897E-01	0.33628E+00
* 556 *	0.40000E-01	-0.99897E-01	0.33628E+00
* 557 *	-0.40000E-01	0.18347E+00	-0.30167E+00
* 558 *	0.40000E-01	0.18347E+00	-0.30167E+00
* 559 *	-0.40000E-01	-0.30167E+00	-0.18347E+00
* 560 *	0.40000E-01	-0.30167E+00	-0.18347E+00
* 561 *	-0.40000E-01	0.30167E+00	0.18347E+00
* 562 *	0.40000E-01	0.30167E+00	0.18347E+00
* 563 *	-0.40000E-01	-0.18347E+00	0.30167E+00
* 564 *	0.40000E-01	-0.18347E+00	0.30167E+00
* 565 *	-0.40000E-01	-0.18347E+00	-0.30167E+00
* 566 *	0.40000E-01	-0.18347E+00	-0.30167E+00
* 567 *	-0.40000E-01	0.30167E+00	-0.18347E+00
* 568 *	0.40000E-01	0.30167E+00	-0.18347E+00
* 569 *	-0.40000E-01	-0.30167E+00	0.18347E+00
* 570 *	0.40000E-01	-0.30167E+00	0.18347E+00
* 571 *	-0.40000E-01	0.18347E+00	0.30167E+00
* 572 *	0.40000E-01	0.18347E+00	0.30167E+00
* 573 *	-0.40000E-01	0.00000E+00	-0.35458E+00
* 574 *	0.40000E-01	0.00000E+00	-0.35458E+00
* 575 *	-0.40000E-01	0.35458E+00	0.00000E+00
* 576 *	0.40000E-01	0.35458E+00	0.00000E+00
* 577 *	-0.40000E-01	-0.35458E+00	0.00000E+00
* 578 *	0.40000E-01	-0.35458E+00	0.00000E+00
* 579 *	-0.40000E-01	0.00000E+00	0.35458E+00
* 580 *	0.40000E-01	0.00000E+00	0.35458E+00
* 581 *	-0.40000E-01	0.25073E+00	-0.25073E+00
* 582 *	0.40000E-01	0.25073E+00	-0.25073E+00
* 583 *	-0.40000E-01	-0.25073E+00	-0.25073E+00
* 584 *	0.40000E-01	-0.25073E+00	-0.25073E+00
* 585 *	-0.40000E-01	0.25073E+00	0.25073E+00
* 586 *	0.40000E-01	0.25073E+00	0.25073E+00
* 587 *	-0.40000E-01	-0.25073E+00	0.25073E+00
* 588 *	0.40000E-01	-0.25073E+00	0.25073E+00
* 589 *	-0.28109E+00	0.15796E+00	-0.15796E+00
* 590 *	0.28109E+00	0.15796E+00	-0.15796E+00
* 591 *	-0.28109E+00	-0.15796E+00	-0.15796E+00
* 592 *	0.28109E+00	-0.15796E+00	-0.15796E+00
* 593 *	-0.28109E+00	0.15796E+00	0.15796E+00
* 594 *	0.28109E+00	0.15796E+00	0.15796E+00

*	595	*	-0.28109E+00	-0.15796E+00	0.15796E+00
*	596	*	0.28109E+00	-0.15796E+00	0.15796E+00
*	597	*	-0.30408E+00	0.00000E+00	-0.19333E+00
*	598	*	0.30408E+00	0.00000E+00	-0.19333E+00
*	599	*	-0.30408E+00	0.19333E+00	0.00000E+00
*	600	*	0.30408E+00	0.19333E+00	0.00000E+00
*	601	*	-0.30408E+00	-0.19333E+00	0.00000E+00
*	602	*	0.30408E+00	-0.19333E+00	0.00000E+00
*	603	*	-0.30408E+00	0.00000E+00	0.19333E+00
*	604	*	0.30408E+00	0.00000E+00	0.19333E+00
*	605	*	-0.28109E+00	0.87141E-01	-0.21246E+00
*	606	*	0.28109E+00	0.87141E-01	-0.21246E+00
*	607	*	-0.28109E+00	-0.87141E-01	-0.21246E+00
*	608	*	0.28109E+00	-0.87141E-01	-0.21246E+00
*	609	*	-0.28109E+00	0.21246E+00	-0.87141E-01
*	610	*	0.28109E+00	0.21246E+00	-0.87141E-01
*	611	*	-0.28109E+00	-0.21246E+00	-0.87141E-01
*	612	*	0.28109E+00	-0.21246E+00	-0.87141E-01
*	613	*	-0.28109E+00	0.21246E+00	0.87141E-01
*	614	*	0.28109E+00	0.21246E+00	0.87141E-01
*	615	*	-0.28109E+00	-0.21246E+00	0.87141E-01
*	616	*	0.28109E+00	-0.21246E+00	0.87141E-01
*	617	*	-0.28109E+00	0.87141E-01	0.21246E+00
*	618	*	0.28109E+00	0.87141E-01	0.21246E+00
*	619	*	-0.28109E+00	-0.87141E-01	0.21246E+00
*	620	*	0.28109E+00	-0.87141E-01	0.21246E+00
*	621	*	-0.12848E+00	0.18347E+00	-0.30167E+00
*	622	*	0.12848E+00	0.18347E+00	-0.30167E+00
*	623	*	-0.12848E+00	-0.30167E+00	-0.18347E+00
*	624	*	0.12848E+00	-0.30167E+00	-0.18347E+00
*	625	*	-0.12848E+00	0.30167E+00	0.18347E+00
*	626	*	0.12848E+00	0.30167E+00	0.18347E+00
*	627	*	-0.12848E+00	-0.18347E+00	0.30167E+00
*	628	*	0.12848E+00	-0.18347E+00	0.30167E+00
*	629	*	-0.12848E+00	-0.18347E+00	-0.30167E+00
*	630	*	0.12848E+00	-0.18347E+00	-0.30167E+00
*	631	*	-0.12848E+00	0.30167E+00	-0.18347E+00
*	632	*	0.12848E+00	0.30167E+00	-0.18347E+00
*	633	*	-0.12848E+00	-0.30167E+00	0.18347E+00
*	634	*	0.12848E+00	-0.30167E+00	0.18347E+00
*	635	*	-0.12848E+00	0.18347E+00	0.30167E+00
*	636	*	0.12848E+00	0.18347E+00	0.30167E+00
*	637	*	-0.28109E+00	0.00000E+00	-0.25064E+00
*	638	*	0.28109E+00	0.00000E+00	-0.25064E+00
*	639	*	-0.28109E+00	0.25064E+00	0.00000E+00
*	640	*	0.28109E+00	0.25064E+00	0.00000E+00
*	641	*	-0.28109E+00	-0.25064E+00	0.00000E+00
*	642	*	0.28109E+00	-0.25064E+00	0.00000E+00
*	643	*	-0.28109E+00	0.00000E+00	0.25064E+00
*	644	*	0.28109E+00	0.00000E+00	0.25064E+00
*	645	*	-0.12848E+00	0.00000E+00	-0.35458E+00
*	646	*	0.12848E+00	0.00000E+00	-0.35458E+00
*	647	*	-0.12848E+00	0.35458E+00	0.00000E+00
*	648	*	0.12848E+00	0.35458E+00	0.00000E+00
*	649	*	-0.12848E+00	-0.35458E+00	0.00000E+00
*	650	*	0.12848E+00	-0.35458E+00	0.00000E+00
*	651	*	-0.12848E+00	0.00000E+00	0.35458E+00
*	652	*	0.12848E+00	0.00000E+00	0.35458E+00
*	653	*	-0.40000E-01	0.19497E+00	-0.32056E+00
*	654	*	0.40000E-01	0.19497E+00	-0.32056E+00
*	655	*	-0.40000E-01	-0.19497E+00	-0.32056E+00
*	656	*	0.40000E-01	-0.19497E+00	-0.32056E+00
*	657	*	-0.40000E-01	-0.32056E+00	-0.19497E+00
*	658	*	0.40000E-01	-0.32056E+00	-0.19497E+00
*	659	*	-0.40000E-01	0.32056E+00	-0.19497E+00
*	660	*	0.40000E-01	0.32056E+00	-0.19497E+00
*	661	*	-0.40000E-01	-0.32056E+00	0.19497E+00
*	662	*	0.40000E-01	-0.32056E+00	0.19497E+00
*	663	*	-0.40000E-01	0.32056E+00	0.19497E+00

* 664 *	0.40000E-01	0.32056E+00	0.19497E+00
* 665 *	-0.40000E-01	0.19497E+00	0.32056E+00
* 666 *	0.40000E-01	0.19497E+00	0.32056E+00
* 667 *	-0.40000E-01	-0.19497E+00	0.32056E+00
* 668 *	0.40000E-01	-0.19497E+00	0.32056E+00
* 669 *	-0.40000E-01	0.00000E+00	-0.37679E+00
* 670 *	0.40000E-01	0.00000E+00	-0.37679E+00
* 671 *	-0.40000E-01	0.37679E+00	0.00000E+00
* 672 *	0.40000E-01	0.37679E+00	0.00000E+00
* 673 *	-0.40000E-01	-0.37679E+00	0.00000E+00
* 674 *	0.40000E-01	-0.37679E+00	0.00000E+00
* 675 *	-0.40000E-01	0.00000E+00	0.37679E+00
* 676 *	0.40000E-01	0.00000E+00	0.37679E+00
* 677 *	-0.25205E+00	0.17072E+00	-0.23160E+00
* 678 *	0.25205E+00	0.17072E+00	-0.23160E+00
* 679 *	-0.25205E+00	-0.17072E+00	-0.23160E+00
* 680 *	0.25205E+00	-0.17072E+00	-0.23160E+00
* 681 *	-0.25205E+00	0.23160E+00	-0.17072E+00
* 682 *	0.25205E+00	0.23160E+00	-0.17072E+00
* 683 *	-0.25205E+00	-0.23160E+00	-0.17072E+00
* 684 *	0.25205E+00	-0.23160E+00	-0.17072E+00
* 685 *	-0.25205E+00	0.23160E+00	0.17072E+00
* 686 *	0.25205E+00	0.23160E+00	0.17072E+00
* 687 *	-0.25205E+00	-0.23160E+00	0.17072E+00
* 688 *	0.25205E+00	-0.23160E+00	0.17072E+00
* 689 *	-0.25205E+00	0.17072E+00	0.23160E+00
* 690 *	0.25205E+00	0.17072E+00	0.23160E+00
* 691 *	-0.25205E+00	-0.17072E+00	0.23160E+00
* 692 *	0.25205E+00	-0.17072E+00	0.23160E+00
* 693 *	-0.25205E+00	0.93519E-01	-0.27616E+00
* 694 *	0.25205E+00	0.93519E-01	-0.27616E+00
* 695 *	-0.25205E+00	-0.93519E-01	-0.27616E+00
* 696 *	0.25205E+00	-0.93519E-01	-0.27616E+00
* 697 *	-0.25205E+00	0.93519E-01	0.27616E+00
* 698 *	0.25205E+00	0.93519E-01	0.27616E+00
* 699 *	-0.25205E+00	-0.93519E-01	0.27616E+00
* 700 *	0.25205E+00	-0.93519E-01	0.27616E+00
* 701 *	-0.25205E+00	0.27616E+00	-0.93519E-01
* 702 *	0.25205E+00	0.27616E+00	-0.93519E-01
* 703 *	-0.25205E+00	-0.27616E+00	-0.93519E-01
* 704 *	0.25205E+00	-0.27616E+00	-0.93519E-01
* 705 *	-0.25205E+00	0.27616E+00	0.93519E-01
* 706 *	0.25205E+00	0.27616E+00	0.93519E-01
* 707 *	-0.25205E+00	-0.27616E+00	0.93519E-01
* 708 *	0.25205E+00	-0.27616E+00	0.93519E-01
* 709 *	-0.25205E+00	0.00000E+00	-0.30439E+00
* 710 *	0.25205E+00	0.00000E+00	-0.30439E+00
* 711 *	-0.25205E+00	0.30439E+00	0.00000E+00
* 712 *	0.25205E+00	0.30439E+00	0.00000E+00
* 713 *	-0.25205E+00	-0.30439E+00	0.00000E+00
* 714 *	0.25205E+00	-0.30439E+00	0.00000E+00
* 715 *	-0.25205E+00	0.00000E+00	0.30439E+00
* 716 *	0.25205E+00	0.00000E+00	0.30439E+00
* 717 *	-0.40000E-01	0.11241E+00	-0.37841E+00
* 718 *	0.40000E-01	0.11241E+00	-0.37841E+00
* 719 *	-0.40000E-01	-0.11241E+00	-0.37841E+00
* 720 *	0.40000E-01	-0.11241E+00	-0.37841E+00
* 721 *	-0.40000E-01	0.37841E+00	-0.11241E+00
* 722 *	0.40000E-01	0.37841E+00	-0.11241E+00
* 723 *	-0.40000E-01	-0.37841E+00	-0.11241E+00
* 724 *	0.40000E-01	-0.37841E+00	-0.11241E+00
* 725 *	-0.40000E-01	0.37841E+00	0.11241E+00
* 726 *	0.40000E-01	0.37841E+00	0.11241E+00
* 727 *	-0.40000E-01	-0.37841E+00	0.11241E+00
* 728 *	0.40000E-01	-0.37841E+00	0.11241E+00
* 729 *	-0.40000E-01	0.11241E+00	0.37841E+00
* 730 *	0.40000E-01	0.11241E+00	0.37841E+00
* 731 *	-0.40000E-01	-0.11241E+00	0.37841E+00
* 732 *	0.40000E-01	-0.11241E+00	0.37841E+00

*	733	*	0.00000E+00	0.20646E+00	-0.33946E+00
*	734	*	0.00000E+00	-0.33946E+00	-0.20646E+00
*	735	*	0.00000E+00	0.33946E+00	0.20646E+00
*	736	*	0.00000E+00	-0.20646E+00	0.33946E+00
*	737	*	0.00000E+00	-0.20646E+00	-0.33946E+00
*	738	*	0.00000E+00	0.33946E+00	-0.20646E+00
*	739	*	0.00000E+00	-0.33946E+00	0.20646E+00
*	740	*	0.00000E+00	0.20646E+00	0.33946E+00
*	741	*	0.00000E+00	0.00000E+00	-0.39900E+00
*	742	*	0.00000E+00	0.39900E+00	0.00000E+00
*	743	*	0.00000E+00	-0.39900E+00	0.00000E+00
*	744	*	0.00000E+00	0.00000E+00	0.39900E+00
*	745	*	-0.40000E-01	0.20646E+00	-0.33946E+00
*	746	*	0.40000E-01	0.20646E+00	-0.33946E+00
*	747	*	-0.40000E-01	-0.20646E+00	-0.33946E+00
*	748	*	0.40000E-01	-0.20646E+00	-0.33946E+00
*	749	*	-0.40000E-01	-0.33946E+00	-0.20646E+00
*	750	*	0.40000E-01	-0.33946E+00	-0.20646E+00
*	751	*	-0.40000E-01	0.33946E+00	-0.20646E+00
*	752	*	0.40000E-01	0.33946E+00	-0.20646E+00
*	753	*	-0.40000E-01	-0.33946E+00	0.20646E+00
*	754	*	0.40000E-01	-0.33946E+00	0.20646E+00
*	755	*	-0.40000E-01	0.33946E+00	0.20646E+00
*	756	*	0.40000E-01	0.33946E+00	0.20646E+00
*	757	*	-0.40000E-01	0.20646E+00	0.33946E+00
*	758	*	0.40000E-01	0.20646E+00	0.33946E+00
*	759	*	-0.40000E-01	-0.20646E+00	0.33946E+00
*	760	*	0.40000E-01	-0.20646E+00	0.33946E+00
*	761	*	-0.40000E-01	0.00000E+00	-0.39900E+00
*	762	*	0.40000E-01	0.00000E+00	-0.39900E+00
*	763	*	-0.40000E-01	0.39900E+00	0.00000E+00
*	764	*	0.40000E-01	0.39900E+00	0.00000E+00
*	765	*	-0.40000E-01	-0.39900E+00	0.00000E+00
*	766	*	0.40000E-01	-0.39900E+00	0.00000E+00
*	767	*	-0.40000E-01	0.00000E+00	0.39900E+00
*	768	*	0.40000E-01	0.00000E+00	0.39900E+00
*	769	*	-0.40000E-01	0.28214E+00	-0.28214E+00
*	770	*	0.40000E-01	0.28214E+00	-0.28214E+00
*	771	*	-0.40000E-01	-0.28214E+00	-0.28214E+00
*	772	*	0.40000E-01	-0.28214E+00	-0.28214E+00
*	773	*	-0.40000E-01	0.28214E+00	0.28214E+00
*	774	*	0.40000E-01	0.28214E+00	0.28214E+00
*	775	*	-0.40000E-01	-0.28214E+00	0.28214E+00
*	776	*	0.40000E-01	-0.28214E+00	0.28214E+00
*	777	*	-0.21696E+00	0.99897E-01	-0.33628E+00
*	778	*	0.21696E+00	0.99897E-01	-0.33628E+00
*	779	*	-0.21696E+00	-0.99897E-01	-0.33628E+00
*	780	*	0.21696E+00	-0.99897E-01	-0.33628E+00
*	781	*	-0.21696E+00	0.33628E+00	-0.99897E-01
*	782	*	0.21696E+00	0.33628E+00	-0.99897E-01
*	783	*	-0.21696E+00	-0.33628E+00	-0.99897E-01
*	784	*	0.21696E+00	-0.33628E+00	-0.99897E-01
*	785	*	-0.21696E+00	0.33628E+00	0.99897E-01
*	786	*	0.21696E+00	0.33628E+00	0.99897E-01
*	787	*	-0.21696E+00	-0.33628E+00	0.99897E-01
*	788	*	0.21696E+00	-0.33628E+00	0.99897E-01
*	789	*	-0.21696E+00	0.99897E-01	0.33628E+00
*	790	*	0.21696E+00	0.99897E-01	0.33628E+00
*	791	*	-0.21696E+00	-0.99897E-01	0.33628E+00
*	792	*	0.21696E+00	-0.99897E-01	0.33628E+00
*	793	*	-0.21696E+00	0.18347E+00	-0.30167E+00
*	794	*	0.21696E+00	0.18347E+00	-0.30167E+00
*	795	*	-0.21696E+00	-0.30167E+00	-0.18347E+00
*	796	*	0.21696E+00	-0.30167E+00	-0.18347E+00
*	797	*	-0.21696E+00	0.30167E+00	0.18347E+00
*	798	*	0.21696E+00	0.30167E+00	0.18347E+00
*	799	*	-0.21696E+00	-0.18347E+00	0.30167E+00
*	800	*	0.21696E+00	-0.18347E+00	0.30167E+00
*	801	*	-0.21696E+00	-0.18347E+00	-0.30167E+00

* 802	*	0.21696E+00	-0.18347E+00	-0.30167E+00
* 803	*	-0.21696E+00	0.30167E+00	-0.18347E+00
* 804	*	0.21696E+00	0.30167E+00	-0.18347E+00
* 805	*	-0.21696E+00	-0.30167E+00	0.18347E+00
* 806	*	0.21696E+00	-0.30167E+00	0.18347E+00
* 807	*	-0.21696E+00	0.18347E+00	0.30167E+00
* 808	*	0.21696E+00	0.18347E+00	0.30167E+00
* 809	*	-0.21696E+00	0.00000E+00	-0.35458E+00
* 810	*	0.21696E+00	0.00000E+00	-0.35458E+00
* 811	*	-0.21696E+00	0.35458E+00	0.00000E+00
* 812	*	0.21696E+00	0.35458E+00	0.00000E+00
* 813	*	-0.21696E+00	-0.35458E+00	0.00000E+00
* 814	*	0.21696E+00	-0.35458E+00	0.00000E+00
* 815	*	-0.21696E+00	0.00000E+00	0.35458E+00
* 816	*	0.21696E+00	0.00000E+00	0.35458E+00
* 817	*	-0.21696E+00	0.25073E+00	-0.25073E+00
* 818	*	0.21696E+00	0.25073E+00	-0.25073E+00
* 819	*	-0.21696E+00	-0.25073E+00	-0.25073E+00
* 820	*	0.21696E+00	-0.25073E+00	-0.25073E+00
* 821	*	-0.21696E+00	0.25073E+00	0.25073E+00
* 822	*	0.21696E+00	0.25073E+00	0.25073E+00
* 823	*	-0.21696E+00	-0.25073E+00	0.25073E+00
* 824	*	0.21696E+00	-0.25073E+00	0.25073E+00
* 825	*	-0.43337E+00	0.00000E+00	0.00000E+00
* 826	*	0.43337E+00	0.00000E+00	0.00000E+00
* 827	*	-0.37419E+00	0.15796E+00	-0.15796E+00
* 828	*	0.37419E+00	0.15796E+00	-0.15796E+00
* 829	*	-0.37419E+00	-0.15796E+00	-0.15796E+00
* 830	*	0.37419E+00	-0.15796E+00	-0.15796E+00
* 831	*	-0.37419E+00	0.15796E+00	0.15796E+00
* 832	*	0.37419E+00	0.15796E+00	0.15796E+00
* 833	*	-0.37419E+00	-0.15796E+00	0.15796E+00
* 834	*	0.37419E+00	-0.15796E+00	0.15796E+00
* 835	*	-0.41684E+00	0.00000E+00	-0.13245E+00
* 836	*	0.41684E+00	0.00000E+00	-0.13245E+00
* 837	*	-0.41684E+00	0.13245E+00	0.00000E+00
* 838	*	0.41684E+00	0.13245E+00	0.00000E+00
* 839	*	-0.41684E+00	-0.13245E+00	0.00000E+00
* 840	*	0.41684E+00	-0.13245E+00	0.00000E+00
* 841	*	-0.41684E+00	0.00000E+00	0.13245E+00
* 842	*	0.41684E+00	0.00000E+00	0.13245E+00
* 843	*	-0.37419E+00	0.00000E+00	-0.25064E+00
* 844	*	0.37419E+00	0.00000E+00	-0.25064E+00
* 845	*	-0.37419E+00	0.25064E+00	0.00000E+00
* 846	*	0.37419E+00	0.25064E+00	0.00000E+00
* 847	*	-0.37419E+00	-0.25064E+00	0.00000E+00
* 848	*	0.37419E+00	-0.25064E+00	0.00000E+00
* 849	*	-0.37419E+00	0.00000E+00	0.25064E+00
* 850	*	0.37419E+00	0.00000E+00	0.25064E+00
* 851	*	-0.12848E+00	-0.22833E+00	-0.37543E+00
* 852	*	0.12848E+00	-0.22833E+00	-0.37543E+00
* 853	*	-0.12848E+00	0.22833E+00	-0.37543E+00
* 854	*	0.12848E+00	0.22833E+00	-0.37543E+00
* 855	*	-0.12848E+00	-0.37543E+00	-0.22833E+00
* 856	*	0.12848E+00	-0.37543E+00	-0.22833E+00
* 857	*	-0.12848E+00	0.37543E+00	0.22833E+00
* 858	*	0.12848E+00	0.37543E+00	0.22833E+00
* 859	*	-0.12848E+00	-0.22833E+00	0.37543E+00
* 860	*	0.12848E+00	-0.22833E+00	0.37543E+00
* 861	*	-0.12848E+00	0.22833E+00	0.37543E+00
* 862	*	0.12848E+00	0.22833E+00	0.37543E+00
* 863	*	-0.12848E+00	0.37543E+00	-0.22833E+00
* 864	*	0.12848E+00	0.37543E+00	-0.22833E+00
* 865	*	-0.12848E+00	-0.37543E+00	0.22833E+00
* 866	*	0.12848E+00	-0.37543E+00	0.22833E+00
* 867	*	-0.12848E+00	0.00000E+00	-0.44128E+00
* 868	*	0.12848E+00	0.00000E+00	-0.44128E+00
* 869	*	-0.12848E+00	0.44128E+00	0.00000E+00
* 870	*	0.12848E+00	0.44128E+00	0.00000E+00

*	871	*	-0.12848E+00	-0.44128E+00	0.00000E+00
*	872	*	0.12848E+00	-0.44128E+00	0.00000E+00
*	873	*	-0.12848E+00	0.00000E+00	0.44128E+00
*	874	*	0.12848E+00	0.00000E+00	0.44128E+00
*	875	*	0.40000E-01	-0.23996E+00	-0.39454E+00
*	876	*	-0.40000E-01	-0.23996E+00	-0.39454E+00
*	877	*	0.40000E-01	0.23996E+00	-0.39454E+00
*	878	*	-0.40000E-01	0.23996E+00	-0.39454E+00
*	879	*	0.40000E-01	0.39454E+00	-0.23996E+00
*	880	*	-0.40000E-01	0.39454E+00	-0.23996E+00
*	881	*	0.40000E-01	-0.39454E+00	-0.23996E+00
*	882	*	-0.40000E-01	-0.39454E+00	-0.23996E+00
*	883	*	0.40000E-01	0.39454E+00	0.23996E+00
*	884	*	-0.40000E-01	0.39454E+00	0.23996E+00
*	885	*	0.40000E-01	-0.39454E+00	0.23996E+00
*	886	*	-0.40000E-01	-0.39454E+00	0.23996E+00
*	887	*	0.40000E-01	-0.23996E+00	0.39454E+00
*	888	*	-0.40000E-01	-0.23996E+00	0.39454E+00
*	889	*	0.40000E-01	0.23996E+00	0.39454E+00
*	890	*	-0.40000E-01	0.23996E+00	0.39454E+00
*	891	*	-0.40000E-01	0.00000E+00	-0.46375E+00
*	892	*	0.40000E-01	0.00000E+00	-0.46375E+00
*	893	*	-0.40000E-01	0.46375E+00	0.00000E+00
*	894	*	0.40000E-01	0.46375E+00	0.00000E+00
*	895	*	-0.40000E-01	-0.46375E+00	0.00000E+00
*	896	*	0.40000E-01	-0.46375E+00	0.00000E+00
*	897	*	-0.40000E-01	0.00000E+00	0.46375E+00
*	898	*	0.40000E-01	0.00000E+00	0.46375E+00
*	899	*	-0.30544E+00	0.18347E+00	-0.30167E+00
*	900	*	0.30544E+00	0.18347E+00	-0.30167E+00
*	901	*	-0.30544E+00	-0.18347E+00	-0.30167E+00
*	902	*	0.30544E+00	-0.18347E+00	-0.30167E+00
*	903	*	-0.30544E+00	-0.30167E+00	-0.18347E+00
*	904	*	0.30544E+00	-0.30167E+00	-0.18347E+00
*	905	*	-0.30544E+00	0.30167E+00	-0.18347E+00
*	906	*	0.30544E+00	0.30167E+00	-0.18347E+00
*	907	*	-0.30544E+00	0.30167E+00	0.18347E+00
*	908	*	0.30544E+00	0.30167E+00	0.18347E+00
*	909	*	-0.30544E+00	-0.30167E+00	0.18347E+00
*	910	*	0.30544E+00	-0.30167E+00	0.18347E+00
*	911	*	-0.30544E+00	0.18347E+00	0.30167E+00
*	912	*	0.30544E+00	0.18347E+00	0.30167E+00
*	913	*	-0.30544E+00	-0.18347E+00	0.30167E+00
*	914	*	0.30544E+00	-0.18347E+00	0.30167E+00
*	915	*	-0.30544E+00	0.00000E+00	-0.35458E+00
*	916	*	0.30544E+00	0.00000E+00	-0.35458E+00
*	917	*	-0.30544E+00	0.35458E+00	0.00000E+00
*	918	*	0.30544E+00	0.35458E+00	0.00000E+00
*	919	*	-0.30544E+00	-0.35458E+00	0.00000E+00
*	920	*	0.30544E+00	-0.35458E+00	0.00000E+00
*	921	*	-0.30544E+00	0.00000E+00	0.35458E+00
*	922	*	0.30544E+00	0.00000E+00	0.35458E+00
*	923	*	-0.21696E+00	0.21684E+00	-0.35653E+00
*	924	*	0.21696E+00	0.21684E+00	-0.35653E+00
*	925	*	-0.21696E+00	-0.21684E+00	-0.35653E+00
*	926	*	0.21696E+00	-0.21684E+00	-0.35653E+00
*	927	*	-0.21696E+00	-0.35653E+00	-0.21684E+00
*	928	*	0.21696E+00	-0.35653E+00	-0.21684E+00
*	929	*	-0.21696E+00	0.35653E+00	-0.21684E+00
*	930	*	0.21696E+00	0.35653E+00	-0.21684E+00
*	931	*	-0.21696E+00	-0.35653E+00	0.21684E+00
*	932	*	0.21696E+00	-0.35653E+00	0.21684E+00
*	933	*	-0.21696E+00	0.35653E+00	0.21684E+00
*	934	*	0.21696E+00	0.35653E+00	0.21684E+00
*	935	*	-0.21696E+00	0.21684E+00	0.35653E+00
*	936	*	0.21696E+00	0.21684E+00	0.35653E+00
*	937	*	-0.21696E+00	-0.21684E+00	0.35653E+00
*	938	*	0.21696E+00	-0.21684E+00	0.35653E+00
*	939	*	-0.21696E+00	0.00000E+00	-0.41907E+00

* 940 *	0.21696E+00	0.00000E+00	-0.41907E+00
* 941 *	-0.21696E+00	0.41907E+00	0.00000E+00
* 942 *	0.21696E+00	0.41907E+00	0.00000E+00
* 943 *	-0.21696E+00	-0.41907E+00	0.00000E+00
* 944 *	0.21696E+00	-0.41907E+00	0.00000E+00
* 945 *	-0.21696E+00	0.00000E+00	0.41907E+00
* 946 *	0.21696E+00	0.00000E+00	0.41907E+00
* 947 *	-0.46730E+00	0.15796E+00	-0.15796E+00
* 948 *	0.46730E+00	0.15796E+00	-0.15796E+00
* 949 *	-0.46730E+00	-0.15796E+00	-0.15796E+00
* 950 *	0.46730E+00	-0.15796E+00	-0.15796E+00
* 951 *	-0.46730E+00	0.15796E+00	0.15796E+00
* 952 *	0.46730E+00	0.15796E+00	0.15796E+00
* 953 *	-0.46730E+00	-0.15796E+00	0.15796E+00
* 954 *	0.46730E+00	-0.15796E+00	0.15796E+00
* 955 *	-0.46730E+00	0.87141E-01	-0.21246E+00
* 956 *	0.46730E+00	0.87141E-01	-0.21246E+00
* 957 *	-0.46730E+00	-0.87141E-01	-0.21246E+00
* 958 *	0.46730E+00	-0.87141E-01	-0.21246E+00
* 959 *	-0.46730E+00	0.21246E+00	-0.87141E-01
* 960 *	0.46730E+00	0.21246E+00	-0.87141E-01
* 961 *	-0.46730E+00	-0.21246E+00	-0.87141E-01
* 962 *	0.46730E+00	-0.21246E+00	-0.87141E-01
* 963 *	-0.46730E+00	0.21246E+00	0.87141E-01
* 964 *	0.46730E+00	0.21246E+00	0.87141E-01
* 965 *	-0.46730E+00	-0.21246E+00	0.87141E-01
* 966 *	0.46730E+00	-0.21246E+00	0.87141E-01
* 967 *	-0.46730E+00	0.87141E-01	0.21246E+00
* 968 *	0.46730E+00	0.87141E-01	0.21246E+00
* 969 *	-0.46730E+00	-0.87141E-01	0.21246E+00
* 970 *	0.46730E+00	-0.87141E-01	0.21246E+00
* 971 *	-0.49348E+00	0.80763E-01	-0.14521E+00
* 972 *	0.49348E+00	0.80763E-01	-0.14521E+00
* 973 *	-0.49348E+00	-0.80763E-01	-0.14521E+00
* 974 *	0.49348E+00	-0.80763E-01	-0.14521E+00
* 975 *	-0.49348E+00	0.14521E+00	-0.80763E-01
* 976 *	0.49348E+00	0.14521E+00	-0.80763E-01
* 977 *	-0.49348E+00	-0.14521E+00	-0.80763E-01
* 978 *	0.49348E+00	-0.14521E+00	-0.80763E-01
* 979 *	-0.49348E+00	0.14521E+00	0.80763E-01
* 980 *	0.49348E+00	0.14521E+00	0.80763E-01
* 981 *	-0.49348E+00	-0.14521E+00	0.80763E-01
* 982 *	0.49348E+00	-0.14521E+00	0.80763E-01
* 983 *	-0.49348E+00	0.80763E-01	0.14521E+00
* 984 *	0.49348E+00	0.80763E-01	0.14521E+00
* 985 *	-0.49348E+00	-0.80763E-01	0.14521E+00
* 986 *	0.49348E+00	-0.80763E-01	0.14521E+00
* 987 *	-0.43411E+00	0.17072E+00	-0.23160E+00
* 988 *	0.43411E+00	0.17072E+00	-0.23160E+00
* 989 *	-0.43411E+00	-0.17072E+00	-0.23160E+00
* 990 *	0.43411E+00	-0.17072E+00	-0.23160E+00
* 991 *	-0.43411E+00	0.23160E+00	-0.17072E+00
* 992 *	0.43411E+00	0.23160E+00	-0.17072E+00
* 993 *	-0.43411E+00	-0.23160E+00	-0.17072E+00
* 994 *	0.43411E+00	-0.23160E+00	-0.17072E+00
* 995 *	-0.43411E+00	0.23160E+00	0.17072E+00
* 996 *	0.43411E+00	0.23160E+00	0.17072E+00
* 997 *	-0.43411E+00	-0.23160E+00	0.17072E+00
* 998 *	0.43411E+00	-0.23160E+00	0.17072E+00
* 999 *	-0.43411E+00	0.17072E+00	0.23160E+00
* 1000 *	0.43411E+00	0.17072E+00	0.23160E+00
* 1001 *	-0.43411E+00	-0.17072E+00	0.23160E+00
* 1002 *	0.43411E+00	-0.17072E+00	0.23160E+00
* 1003 *	-0.43411E+00	0.93519E-01	-0.27616E+00
* 1004 *	0.43411E+00	0.93519E-01	-0.27616E+00
* 1005 *	-0.43411E+00	-0.93519E-01	-0.27616E+00
* 1006 *	0.43411E+00	-0.93519E-01	-0.27616E+00
* 1007 *	-0.43411E+00	0.27616E+00	-0.93519E-01
* 1008 *	0.43411E+00	0.27616E+00	-0.93519E-01

* 1009	*	-0.43411E+00	-0.27616E+00	-0.93519E-01
* 1010	*	0.43411E+00	-0.27616E+00	-0.93519E-01
* 1011	*	-0.43411E+00	0.27616E+00	0.93519E-01
* 1012	*	0.43411E+00	0.27616E+00	0.93519E-01
* 1013	*	-0.43411E+00	-0.27616E+00	0.93519E-01
* 1014	*	0.43411E+00	-0.27616E+00	0.93519E-01
* 1015	*	-0.43411E+00	0.93519E-01	0.27616E+00
* 1016	*	0.43411E+00	0.93519E-01	0.27616E+00
* 1017	*	-0.43411E+00	-0.93519E-01	0.27616E+00
* 1018	*	0.43411E+00	-0.93519E-01	0.27616E+00
* 1019	*	-0.51266E+00	0.74386E-01	-0.74386E-01
* 1020	*	0.51266E+00	0.74386E-01	-0.74386E-01
* 1021	*	-0.51266E+00	-0.74386E-01	-0.74386E-01
* 1022	*	0.51266E+00	-0.74386E-01	-0.74386E-01
* 1023	*	-0.51266E+00	0.74386E-01	0.74386E-01
* 1024	*	0.51266E+00	0.74386E-01	0.74386E-01
* 1025	*	-0.51266E+00	-0.74386E-01	0.74386E-01
* 1026	*	0.51266E+00	-0.74386E-01	0.74386E-01
* 1027	*	-0.40000E-01	0.14889E+00	-0.50122E+00
* 1028	*	0.40000E-01	0.14889E+00	-0.50122E+00
* 1029	*	-0.40000E-01	-0.50122E+00	-0.14889E+00
* 1030	*	0.40000E-01	-0.50122E+00	-0.14889E+00
* 1031	*	-0.40000E-01	0.50122E+00	0.14889E+00
* 1032	*	0.40000E-01	0.50122E+00	0.14889E+00
* 1033	*	-0.40000E-01	-0.14889E+00	0.50122E+00
* 1034	*	0.40000E-01	-0.14889E+00	0.50122E+00
* 1035	*	-0.40000E-01	-0.14889E+00	-0.50122E+00
* 1036	*	0.40000E-01	-0.14889E+00	-0.50122E+00
* 1037	*	0.40000E-01	0.50122E+00	-0.14889E+00
* 1038	*	-0.40000E-01	0.50122E+00	-0.14889E+00
* 1039	*	-0.40000E-01	-0.50122E+00	0.14889E+00
* 1040	*	0.40000E-01	-0.50122E+00	0.14889E+00
* 1041	*	-0.40000E-01	0.14889E+00	0.50122E+00
* 1042	*	0.40000E-01	0.14889E+00	0.50122E+00
* 1043	*	-0.21696E+00	-0.13623E+00	-0.45861E+00
* 1044	*	0.21696E+00	-0.13623E+00	-0.45861E+00
* 1045	*	-0.21696E+00	0.45861E+00	-0.13623E+00
* 1046	*	0.21696E+00	0.45861E+00	-0.13623E+00
* 1047	*	-0.21696E+00	-0.45861E+00	0.13623E+00
* 1048	*	0.21696E+00	-0.45861E+00	0.13623E+00
* 1049	*	-0.21696E+00	0.13623E+00	0.45861E+00
* 1050	*	0.21696E+00	0.13623E+00	0.45861E+00
* 1051	*	-0.21696E+00	0.13623E+00	-0.45861E+00
* 1052	*	0.21696E+00	0.13623E+00	-0.45861E+00
* 1053	*	-0.21696E+00	-0.45861E+00	-0.13623E+00
* 1054	*	0.21696E+00	-0.45861E+00	-0.13623E+00
* 1055	*	-0.21696E+00	0.45861E+00	0.13623E+00
* 1056	*	0.21696E+00	0.45861E+00	0.13623E+00
* 1057	*	-0.21696E+00	-0.13623E+00	0.45861E+00
* 1058	*	0.21696E+00	-0.13623E+00	0.45861E+00
* 1059	*	-0.30544E+00	-0.22153E+00	-0.36591E+00
* 1060	*	0.30544E+00	-0.22153E+00	-0.36591E+00
* 1061	*	-0.30544E+00	0.36591E+00	-0.22153E+00
* 1062	*	0.30544E+00	0.36591E+00	-0.22153E+00
* 1063	*	-0.30544E+00	-0.36591E+00	0.22153E+00
* 1064	*	0.30544E+00	-0.36591E+00	0.22153E+00
* 1065	*	-0.30544E+00	0.22153E+00	0.36591E+00
* 1066	*	0.30544E+00	0.22153E+00	0.36591E+00
* 1067	*	-0.30544E+00	0.22153E+00	-0.36591E+00
* 1068	*	0.30544E+00	0.22153E+00	-0.36591E+00
* 1069	*	-0.30544E+00	-0.36591E+00	-0.22153E+00
* 1070	*	0.30544E+00	-0.36591E+00	-0.22153E+00
* 1071	*	-0.30544E+00	0.36591E+00	0.22153E+00
* 1072	*	0.30544E+00	0.36591E+00	0.22153E+00
* 1073	*	-0.30544E+00	-0.22153E+00	0.36591E+00
* 1074	*	0.30544E+00	-0.22153E+00	0.36591E+00
* 1075	*	-0.12848E+00	0.26455E+00	-0.43595E+00
* 1076	*	0.12848E+00	0.26455E+00	-0.43595E+00
* 1077	*	-0.12848E+00	-0.26455E+00	-0.43595E+00

* 1078 *	0.12848E+00	-0.26455E+00	-0.43595E+00
* 1079 *	-0.12848E+00	-0.43595E+00	-0.26455E+00
* 1080 *	0.12848E+00	-0.43595E+00	-0.26455E+00
* 1081 *	-0.12848E+00	0.43595E+00	-0.26455E+00
* 1082 *	0.12848E+00	0.43595E+00	-0.26455E+00
* 1083 *	-0.12848E+00	-0.43595E+00	0.26455E+00
* 1084 *	0.12848E+00	-0.43595E+00	0.26455E+00
* 1085 *	-0.12848E+00	0.43595E+00	0.26455E+00
* 1086 *	0.12848E+00	0.43595E+00	0.26455E+00
* 1087 *	-0.12848E+00	-0.26455E+00	0.43595E+00
* 1088 *	0.12848E+00	-0.26455E+00	0.43595E+00
* 1089 *	-0.12848E+00	0.26455E+00	0.43595E+00
* 1090 *	0.12848E+00	0.26455E+00	0.43595E+00
* 1091 *	0.00000E+00	-0.27396E+00	-0.45063E+00
* 1092 *	0.00000E+00	0.27396E+00	-0.45063E+00
* 1093 *	0.00000E+00	0.45063E+00	-0.27396E+00
* 1094 *	0.00000E+00	-0.45063E+00	-0.27396E+00
* 1095 *	0.00000E+00	0.45063E+00	0.27396E+00
* 1096 *	0.00000E+00	-0.45063E+00	0.27396E+00
* 1097 *	0.00000E+00	-0.27396E+00	0.45063E+00
* 1098 *	0.00000E+00	0.27396E+00	0.45063E+00
* 1099 *	-0.39392E+00	0.99897E-01	-0.33628E+00
* 1100 *	0.39392E+00	0.99897E-01	-0.33628E+00
* 1101 *	-0.39392E+00	-0.99897E-01	-0.33628E+00
* 1102 *	0.39392E+00	-0.99897E-01	-0.33628E+00
* 1103 *	-0.39392E+00	0.33628E+00	-0.99897E-01
* 1104 *	0.39392E+00	0.33628E+00	-0.99897E-01
* 1105 *	-0.39392E+00	-0.33628E+00	-0.99897E-01
* 1106 *	0.39392E+00	-0.33628E+00	-0.99897E-01
* 1107 *	-0.39392E+00	0.33628E+00	0.99897E-01
* 1108 *	0.39392E+00	0.33628E+00	0.99897E-01
* 1109 *	-0.39392E+00	-0.33628E+00	0.99897E-01
* 1110 *	0.39392E+00	-0.33628E+00	0.99897E-01
* 1111 *	-0.39392E+00	0.99897E-01	0.33628E+00
* 1112 *	0.39392E+00	0.99897E-01	0.33628E+00
* 1113 *	-0.39392E+00	-0.99897E-01	0.33628E+00
* 1114 *	0.39392E+00	-0.99897E-01	0.33628E+00
* 1115 *	-0.40000E-01	0.27346E+00	-0.44962E+00
* 1116 *	0.40000E-01	0.27346E+00	-0.44962E+00
* 1117 *	-0.40000E-01	-0.27346E+00	-0.44962E+00
* 1118 *	0.40000E-01	-0.27346E+00	-0.44962E+00
* 1119 *	-0.40000E-01	-0.44962E+00	-0.27346E+00
* 1120 *	0.40000E-01	-0.44962E+00	-0.27346E+00
* 1121 *	-0.40000E-01	0.44962E+00	-0.27346E+00
* 1122 *	0.40000E-01	0.44962E+00	-0.27346E+00
* 1123 *	-0.40000E-01	0.44962E+00	0.27346E+00
* 1124 *	0.40000E-01	0.44962E+00	0.27346E+00
* 1125 *	-0.40000E-01	-0.44962E+00	0.27346E+00
* 1126 *	0.40000E-01	-0.44962E+00	0.27346E+00
* 1127 *	-0.40000E-01	0.27346E+00	0.44962E+00
* 1128 *	0.40000E-01	0.27346E+00	0.44962E+00
* 1129 *	-0.40000E-01	-0.27346E+00	0.44962E+00
* 1130 *	0.40000E-01	-0.27346E+00	0.44962E+00
* 1131 *	-0.21696E+00	-0.25021E+00	-0.41140E+00
* 1132 *	0.21696E+00	-0.25021E+00	-0.41140E+00
* 1133 *	-0.21696E+00	0.25021E+00	-0.41140E+00
* 1134 *	0.21696E+00	0.25021E+00	-0.41140E+00
* 1135 *	-0.21696E+00	-0.41140E+00	-0.25021E+00
* 1136 *	0.21696E+00	-0.41140E+00	-0.25021E+00
* 1137 *	-0.21696E+00	0.41140E+00	-0.25021E+00
* 1138 *	0.21696E+00	0.41140E+00	-0.25021E+00
* 1139 *	-0.21696E+00	0.41140E+00	0.25021E+00
* 1140 *	0.21696E+00	0.41140E+00	0.25021E+00
* 1141 *	-0.21696E+00	-0.41140E+00	0.25021E+00
* 1142 *	0.21696E+00	-0.41140E+00	0.25021E+00
* 1143 *	-0.21696E+00	0.25021E+00	0.41140E+00
* 1144 *	0.21696E+00	0.25021E+00	0.41140E+00
* 1145 *	-0.21696E+00	-0.25021E+00	0.41140E+00
* 1146 *	0.21696E+00	-0.25021E+00	0.41140E+00

* 1147	*	-0.39392E+00	0.18347E+00	-0.30167E+00
* 1148	*	0.39392E+00	0.18347E+00	-0.30167E+00
* 1149	*	-0.39392E+00	-0.18347E+00	-0.30167E+00
* 1150	*	0.39392E+00	-0.18347E+00	-0.30167E+00
* 1151	*	-0.39392E+00	-0.30167E+00	-0.18347E+00
* 1152	*	0.39392E+00	-0.30167E+00	-0.18347E+00
* 1153	*	-0.39392E+00	0.30167E+00	-0.18347E+00
* 1154	*	0.39392E+00	0.30167E+00	-0.18347E+00
* 1155	*	-0.39392E+00	0.30167E+00	0.18347E+00
* 1156	*	0.39392E+00	0.30167E+00	0.18347E+00
* 1157	*	-0.39392E+00	-0.30167E+00	0.18347E+00
* 1158	*	0.39392E+00	-0.30167E+00	0.18347E+00
* 1159	*	-0.39392E+00	0.18347E+00	0.30167E+00
* 1160	*	0.39392E+00	0.18347E+00	0.30167E+00
* 1161	*	-0.39392E+00	-0.18347E+00	0.30167E+00
* 1162	*	0.39392E+00	-0.18347E+00	0.30167E+00
* 1163	*	-0.52483E+00	0.00000E+00	-0.68008E-01
* 1164	*	0.52483E+00	0.00000E+00	-0.68008E-01
* 1165	*	-0.52483E+00	0.68008E-01	0.00000E+00
* 1166	*	0.52483E+00	0.68008E-01	0.00000E+00
* 1167	*	-0.52483E+00	-0.68008E-01	0.00000E+00
* 1168	*	0.52483E+00	-0.68008E-01	0.00000E+00
* 1169	*	-0.52483E+00	0.00000E+00	0.68008E-01
* 1170	*	0.52483E+00	0.00000E+00	0.68008E-01
* 1171	*	-0.51266E+00	0.00000E+00	-0.13245E+00
* 1172	*	0.51266E+00	0.00000E+00	-0.13245E+00
* 1173	*	-0.51266E+00	0.13245E+00	0.00000E+00
* 1174	*	0.51266E+00	0.13245E+00	0.00000E+00
* 1175	*	-0.51266E+00	-0.13245E+00	0.00000E+00
* 1176	*	0.51266E+00	-0.13245E+00	0.00000E+00
* 1177	*	-0.51266E+00	0.00000E+00	0.13245E+00
* 1178	*	0.51266E+00	0.00000E+00	0.13245E+00
* 1179	*	-0.12848E+00	0.00000E+00	-0.51419E+00
* 1180	*	0.12848E+00	0.00000E+00	-0.51419E+00
* 1181	*	-0.12848E+00	0.51419E+00	0.00000E+00
* 1182	*	0.12848E+00	0.51419E+00	0.00000E+00
* 1183	*	-0.12848E+00	-0.51419E+00	0.00000E+00
* 1184	*	0.12848E+00	-0.51419E+00	0.00000E+00
* 1185	*	-0.12848E+00	0.00000E+00	0.51419E+00
* 1186	*	0.12848E+00	0.00000E+00	0.51419E+00
* 1187	*	-0.49348E+00	0.00000E+00	-0.19333E+00
* 1188	*	0.49348E+00	0.00000E+00	-0.19333E+00
* 1189	*	-0.49348E+00	0.19333E+00	0.00000E+00
* 1190	*	0.49348E+00	0.19333E+00	0.00000E+00
* 1191	*	-0.49348E+00	-0.19333E+00	0.00000E+00
* 1192	*	0.49348E+00	-0.19333E+00	0.00000E+00
* 1193	*	-0.49348E+00	0.00000E+00	0.19333E+00
* 1194	*	0.49348E+00	0.00000E+00	0.19333E+00
* 1195	*	0.00000E+00	0.00000E+00	-0.53000E+00
* 1196	*	-0.39392E+00	0.00000E+00	-0.35458E+00
* 1197	*	0.39392E+00	0.00000E+00	-0.35458E+00
* 1198	*	0.00000E+00	0.53000E+00	0.00000E+00
* 1199	*	-0.39392E+00	0.35458E+00	0.00000E+00
* 1200	*	0.39392E+00	0.35458E+00	0.00000E+00
* 1201	*	-0.39392E+00	-0.35458E+00	0.00000E+00
* 1202	*	0.39392E+00	-0.35458E+00	0.00000E+00
* 1203	*	0.00000E+00	-0.53000E+00	0.00000E+00
* 1204	*	-0.53000E+00	0.00000E+00	0.00000E+00
* 1205	*	0.53000E+00	0.00000E+00	0.00000E+00
* 1206	*	-0.39392E+00	0.00000E+00	0.35458E+00
* 1207	*	0.39392E+00	0.00000E+00	0.35458E+00
* 1208	*	0.00000E+00	0.00000E+00	0.53000E+00
* 1209	*	0.40000E-01	0.00000E+00	-0.52849E+00
* 1210	*	-0.40000E-01	0.00000E+00	-0.52849E+00
* 1211	*	0.40000E-01	0.52849E+00	0.00000E+00
* 1212	*	-0.40000E-01	0.52849E+00	0.00000E+00
* 1213	*	0.40000E-01	-0.52849E+00	0.00000E+00
* 1214	*	-0.40000E-01	-0.52849E+00	0.00000E+00
* 1215	*	0.40000E-01	0.00000E+00	0.52849E+00

* 1216 *	-0.40000E-01	0.00000E+00	0.52849E+00
* 1217 *	-0.21696E+00	0.00000E+00	-0.48356E+00
* 1218 *	0.21696E+00	0.00000E+00	-0.48356E+00
* 1219 *	-0.21696E+00	0.48356E+00	0.00000E+00
* 1220 *	0.21696E+00	0.48356E+00	0.00000E+00
* 1221 *	-0.21696E+00	-0.48356E+00	0.00000E+00
* 1222 *	0.21696E+00	-0.48356E+00	0.00000E+00
* 1223 *	-0.21696E+00	0.00000E+00	0.48356E+00
* 1224 *	0.21696E+00	0.00000E+00	0.48356E+00
* 1225 *	-0.40000E-01	0.37370E+00	-0.37370E+00
* 1226 *	0.40000E-01	0.37370E+00	-0.37370E+00
* 1227 *	-0.40000E-01	-0.37370E+00	-0.37370E+00
* 1228 *	0.40000E-01	-0.37370E+00	-0.37370E+00
* 1229 *	-0.40000E-01	0.37370E+00	0.37370E+00
* 1230 *	0.40000E-01	0.37370E+00	0.37370E+00
* 1231 *	-0.40000E-01	-0.37370E+00	0.37370E+00
* 1232 *	0.40000E-01	-0.37370E+00	0.37370E+00
* 1233 *	-0.30544E+00	0.00000E+00	-0.43314E+00
* 1234 *	0.30544E+00	0.00000E+00	-0.43314E+00
* 1235 *	-0.21696E+00	0.34193E+00	-0.34193E+00
* 1236 *	0.21696E+00	0.34193E+00	-0.34193E+00
* 1237 *	-0.21696E+00	-0.34193E+00	-0.34193E+00
* 1238 *	0.21696E+00	-0.34193E+00	-0.34193E+00
* 1239 *	-0.30544E+00	0.43314E+00	0.00000E+00
* 1240 *	0.30544E+00	0.43314E+00	0.00000E+00
* 1241 *	-0.30544E+00	-0.43314E+00	0.00000E+00
* 1242 *	0.30544E+00	-0.43314E+00	0.00000E+00
* 1243 *	-0.21696E+00	0.34193E+00	0.34193E+00
* 1244 *	0.21696E+00	0.34193E+00	0.34193E+00
* 1245 *	-0.21696E+00	-0.34193E+00	0.34193E+00
* 1246 *	0.21696E+00	-0.34193E+00	0.34193E+00
* 1247 *	-0.30544E+00	0.00000E+00	0.43314E+00
* 1248 *	0.30544E+00	0.00000E+00	0.43314E+00
* 1249 *	-0.39392E+00	0.25073E+00	-0.25073E+00
* 1250 *	0.39392E+00	0.25073E+00	-0.25073E+00
* 1251 *	-0.39392E+00	-0.25073E+00	-0.25073E+00
* 1252 *	0.39392E+00	-0.25073E+00	-0.25073E+00
* 1253 *	-0.39392E+00	0.25073E+00	0.25073E+00
* 1254 *	0.39392E+00	0.25073E+00	0.25073E+00
* 1255 *	-0.39392E+00	-0.25073E+00	0.25073E+00
* 1256 *	0.39392E+00	-0.25073E+00	0.25073E+00
* 1257 *	-0.43411E+00	0.00000E+00	-0.30439E+00
* 1258 *	0.43411E+00	0.00000E+00	-0.30439E+00
* 1259 *	-0.43411E+00	0.30439E+00	0.00000E+00
* 1260 *	0.43411E+00	0.30439E+00	0.00000E+00
* 1261 *	-0.43411E+00	-0.30439E+00	0.00000E+00
* 1262 *	0.43411E+00	-0.30439E+00	0.00000E+00
* 1263 *	-0.43411E+00	0.00000E+00	0.30439E+00
* 1264 *	0.43411E+00	0.00000E+00	0.30439E+00
* 1265 *	-0.46730E+00	0.00000E+00	-0.25064E+00
* 1266 *	0.46730E+00	0.00000E+00	-0.25064E+00
* 1267 *	-0.46730E+00	0.25064E+00	0.00000E+00
* 1268 *	0.46730E+00	0.25064E+00	0.00000E+00
* 1269 *	-0.46730E+00	-0.25064E+00	0.00000E+00
* 1270 *	0.46730E+00	-0.25064E+00	0.00000E+00
* 1271 *	-0.46730E+00	0.00000E+00	0.25064E+00
* 1272 *	0.46730E+00	0.00000E+00	0.25064E+00
* 1273 *	-0.57152E+00	0.15796E+00	-0.15796E+00
* 1274 *	0.57152E+00	0.15796E+00	-0.15796E+00
* 1275 *	-0.57152E+00	-0.15796E+00	-0.15796E+00
* 1276 *	0.57152E+00	-0.15796E+00	-0.15796E+00
* 1277 *	-0.57152E+00	0.15796E+00	0.15796E+00
* 1278 *	0.57152E+00	0.15796E+00	0.15796E+00
* 1279 *	-0.57152E+00	-0.15796E+00	0.15796E+00
* 1280 *	0.57152E+00	-0.15796E+00	0.15796E+00
* 1281 *	-0.32442E+00	-0.27415E+00	-0.45076E+00
* 1282 *	0.32442E+00	-0.27415E+00	-0.45076E+00
* 1283 *	-0.32442E+00	0.45076E+00	-0.27415E+00
* 1284 *	0.32442E+00	0.45076E+00	-0.27415E+00

* 1285	*	-0.32442E+00	-0.45076E+00	0.27415E+00
* 1286	*	0.32442E+00	-0.45076E+00	0.27415E+00
* 1287	*	-0.32442E+00	0.27415E+00	0.45076E+00
* 1288	*	0.32442E+00	0.27415E+00	0.45076E+00
* 1289	*	-0.32442E+00	0.27415E+00	-0.45076E+00
* 1290	*	0.32442E+00	0.27415E+00	-0.45076E+00
* 1291	*	-0.32442E+00	-0.45076E+00	-0.27415E+00
* 1292	*	0.32442E+00	-0.45076E+00	-0.27415E+00
* 1293	*	-0.32442E+00	0.45076E+00	0.27415E+00
* 1294	*	0.32442E+00	0.45076E+00	0.27415E+00
* 1295	*	-0.32442E+00	-0.27415E+00	0.45076E+00
* 1296	*	0.32442E+00	-0.27415E+00	0.45076E+00
* 1297	*	-0.51028E+00	0.18347E+00	-0.30167E+00
* 1298	*	0.51028E+00	0.18347E+00	-0.30167E+00
* 1299	*	-0.51028E+00	-0.18347E+00	-0.30167E+00
* 1300	*	0.51028E+00	-0.18347E+00	-0.30167E+00
* 1301	*	-0.51028E+00	-0.30167E+00	-0.18347E+00
* 1302	*	0.51028E+00	-0.30167E+00	-0.18347E+00
* 1303	*	-0.51028E+00	0.30167E+00	-0.18347E+00
* 1304	*	0.51028E+00	0.30167E+00	-0.18347E+00
* 1305	*	-0.51028E+00	0.30167E+00	0.18347E+00
* 1306	*	0.51028E+00	0.30167E+00	0.18347E+00
* 1307	*	-0.51028E+00	-0.30167E+00	0.18347E+00
* 1308	*	0.51028E+00	-0.30167E+00	0.18347E+00
* 1309	*	-0.51028E+00	0.18347E+00	0.30167E+00
* 1310	*	0.51028E+00	0.18347E+00	0.30167E+00
* 1311	*	-0.51028E+00	-0.18347E+00	0.30167E+00
* 1312	*	0.51028E+00	-0.18347E+00	0.30167E+00
* 1313	*	-0.32442E+00	0.00000E+00	-0.52983E+00
* 1314	*	0.32442E+00	0.00000E+00	-0.52983E+00
* 1315	*	-0.32442E+00	0.52983E+00	0.00000E+00
* 1316	*	0.32442E+00	0.52983E+00	0.00000E+00
* 1317	*	-0.32442E+00	-0.52983E+00	0.00000E+00
* 1318	*	0.32442E+00	-0.52983E+00	0.00000E+00
* 1319	*	-0.32442E+00	0.00000E+00	0.52983E+00
* 1320	*	0.32442E+00	0.00000E+00	0.52983E+00
* 1321	*	-0.51028E+00	0.00000E+00	-0.35458E+00
* 1322	*	0.51028E+00	0.00000E+00	-0.35458E+00
* 1323	*	-0.51028E+00	0.35458E+00	0.00000E+00
* 1324	*	0.51028E+00	0.35458E+00	0.00000E+00
* 1325	*	-0.51028E+00	-0.35458E+00	0.00000E+00
* 1326	*	0.51028E+00	-0.35458E+00	0.00000E+00
* 1327	*	-0.51028E+00	0.00000E+00	0.35458E+00
* 1328	*	0.51028E+00	0.00000E+00	0.35458E+00
* 1329	*	-0.40000E-01	-0.32271E+00	-0.53061E+00
* 1330	*	0.40000E-01	-0.32271E+00	-0.53061E+00
* 1331	*	-0.40000E-01	0.32271E+00	-0.53061E+00
* 1332	*	0.40000E-01	0.32271E+00	-0.53061E+00
* 1333	*	-0.40000E-01	-0.53061E+00	-0.32271E+00
* 1334	*	0.40000E-01	-0.53061E+00	-0.32271E+00
* 1335	*	-0.40000E-01	0.53061E+00	-0.32271E+00
* 1336	*	0.40000E-01	0.53061E+00	-0.32271E+00
* 1337	*	-0.40000E-01	-0.53061E+00	0.32271E+00
* 1338	*	0.40000E-01	-0.53061E+00	0.32271E+00
* 1339	*	-0.40000E-01	0.53061E+00	0.32271E+00
* 1340	*	0.40000E-01	0.53061E+00	0.32271E+00
* 1341	*	-0.40000E-01	-0.32271E+00	0.53061E+00
* 1342	*	0.40000E-01	-0.32271E+00	0.53061E+00
* 1343	*	-0.40000E-01	0.32271E+00	0.53061E+00
* 1344	*	0.40000E-01	0.32271E+00	0.53061E+00
* 1345	*	-0.60976E+00	0.00000E+00	-0.13245E+00
* 1346	*	0.60976E+00	0.00000E+00	-0.13245E+00
* 1347	*	-0.60976E+00	0.13245E+00	0.00000E+00
* 1348	*	0.60976E+00	0.13245E+00	0.00000E+00
* 1349	*	-0.60976E+00	-0.13245E+00	0.00000E+00
* 1350	*	0.60976E+00	-0.13245E+00	0.00000E+00
* 1351	*	-0.60976E+00	0.00000E+00	0.13245E+00
* 1352	*	0.60976E+00	0.00000E+00	0.13245E+00
* 1353	*	-0.57152E+00	0.00000E+00	-0.25064E+00

* 1354	*	0.57152E+00	0.00000E+00	-0.25064E+00
* 1355	*	-0.57152E+00	0.25064E+00	0.00000E+00
* 1356	*	0.57152E+00	0.25064E+00	0.00000E+00
* 1357	*	-0.57152E+00	-0.25064E+00	0.00000E+00
* 1358	*	0.57152E+00	-0.25064E+00	0.00000E+00
* 1359	*	-0.57152E+00	0.00000E+00	0.25064E+00
* 1360	*	0.57152E+00	0.00000E+00	0.25064E+00
* 1361	*	0.40000E-01	0.00000E+00	-0.62369E+00
* 1362	*	-0.40000E-01	0.00000E+00	-0.62369E+00
* 1363	*	0.40000E-01	0.62369E+00	0.00000E+00
* 1364	*	-0.40000E-01	0.62369E+00	0.00000E+00
* 1365	*	0.40000E-01	-0.62369E+00	0.00000E+00
* 1366	*	-0.40000E-01	-0.62369E+00	0.00000E+00
* 1367	*	0.40000E-01	0.00000E+00	0.62369E+00
* 1368	*	-0.40000E-01	0.00000E+00	0.62369E+00
* 1369	*	-0.62500E+00	0.00000E+00	0.00000E+00
* 1370	*	0.62500E+00	0.00000E+00	0.00000E+00
* 1371	*	-0.67575E+00	0.15796E+00	-0.15796E+00
* 1372	*	0.67575E+00	0.15796E+00	-0.15796E+00
* 1373	*	-0.67575E+00	-0.15796E+00	-0.15796E+00
* 1374	*	0.67575E+00	-0.15796E+00	-0.15796E+00
* 1375	*	-0.67575E+00	0.15796E+00	0.15796E+00
* 1376	*	0.67575E+00	0.15796E+00	0.15796E+00
* 1377	*	-0.67575E+00	-0.15796E+00	0.15796E+00
* 1378	*	0.67575E+00	-0.15796E+00	0.15796E+00
* 1379	*	-0.26033E+00	0.56673E+00	-0.34296E+00
* 1380	*	0.26033E+00	0.56673E+00	-0.34296E+00
* 1381	*	-0.26033E+00	-0.56673E+00	0.34296E+00
* 1382	*	0.26033E+00	-0.56673E+00	0.34296E+00
* 1383	*	-0.26033E+00	0.34296E+00	-0.56673E+00
* 1384	*	0.26033E+00	0.34296E+00	-0.56673E+00
* 1385	*	-0.26033E+00	-0.34296E+00	-0.56673E+00
* 1386	*	0.26033E+00	-0.34296E+00	-0.56673E+00
* 1387	*	-0.26033E+00	-0.56673E+00	-0.34296E+00
* 1388	*	0.26033E+00	-0.56673E+00	-0.34296E+00
* 1389	*	-0.26033E+00	0.56673E+00	0.34296E+00
* 1390	*	0.26033E+00	0.56673E+00	0.34296E+00
* 1391	*	-0.26033E+00	0.34296E+00	0.56673E+00
* 1392	*	0.26033E+00	0.34296E+00	0.56673E+00
* 1393	*	-0.26033E+00	-0.34296E+00	0.56673E+00
* 1394	*	0.26033E+00	-0.34296E+00	0.56673E+00
* 1395	*	-0.40000E-01	-0.68179E+00	-0.20253E+00
* 1396	*	0.40000E-01	-0.68179E+00	-0.20253E+00
* 1397	*	-0.40000E-01	0.68179E+00	0.20253E+00
* 1398	*	0.40000E-01	0.68179E+00	0.20253E+00
* 1399	*	-0.40000E-01	0.20253E+00	-0.68179E+00
* 1400	*	0.40000E-01	0.20253E+00	-0.68179E+00
* 1401	*	-0.40000E-01	-0.20253E+00	-0.68179E+00
* 1402	*	0.40000E-01	-0.20253E+00	-0.68179E+00
* 1403	*	0.40000E-01	0.68179E+00	-0.20253E+00
* 1404	*	-0.40000E-01	0.68179E+00	-0.20253E+00
* 1405	*	-0.40000E-01	-0.68179E+00	0.20253E+00
* 1406	*	0.40000E-01	-0.68179E+00	0.20253E+00
* 1407	*	-0.40000E-01	0.20253E+00	0.68179E+00
* 1408	*	0.40000E-01	0.20253E+00	0.68179E+00
* 1409	*	-0.40000E-01	-0.20253E+00	0.68179E+00
* 1410	*	0.40000E-01	-0.20253E+00	0.68179E+00
* 1411	*	-0.69356E+00	0.80763E-01	-0.14521E+00
* 1412	*	0.69356E+00	0.80763E-01	-0.14521E+00
* 1413	*	-0.69356E+00	-0.80763E-01	-0.14521E+00
* 1414	*	0.69356E+00	-0.80763E-01	-0.14521E+00
* 1415	*	-0.69356E+00	0.14521E+00	-0.80763E-01
* 1416	*	0.69356E+00	0.14521E+00	-0.80763E-01
* 1417	*	-0.69356E+00	-0.14521E+00	-0.80763E-01
* 1418	*	0.69356E+00	-0.14521E+00	-0.80763E-01
* 1419	*	-0.69356E+00	0.14521E+00	0.80763E-01
* 1420	*	0.69356E+00	0.14521E+00	0.80763E-01
* 1421	*	-0.69356E+00	-0.14521E+00	0.80763E-01
* 1422	*	0.69356E+00	-0.14521E+00	0.80763E-01

* 1423	*	-0.69356E+00	0.80763E-01	0.14521E+00
* 1424	*	0.69356E+00	0.80763E-01	0.14521E+00
* 1425	*	-0.69356E+00	-0.80763E-01	0.14521E+00
* 1426	*	0.69356E+00	-0.80763E-01	0.14521E+00
* 1427	*	-0.67575E+00	0.87141E-01	-0.21246E+00
* 1428	*	0.67575E+00	0.87141E-01	-0.21246E+00
* 1429	*	-0.67575E+00	-0.87141E-01	-0.21246E+00
* 1430	*	0.67575E+00	-0.87141E-01	-0.21246E+00
* 1431	*	-0.67575E+00	0.21246E+00	-0.87141E-01
* 1432	*	0.67575E+00	0.21246E+00	-0.87141E-01
* 1433	*	-0.67575E+00	-0.21246E+00	-0.87141E-01
* 1434	*	0.67575E+00	-0.21246E+00	-0.87141E-01
* 1435	*	-0.67575E+00	0.21246E+00	0.87141E-01
* 1436	*	0.67575E+00	0.21246E+00	0.87141E-01
* 1437	*	-0.67575E+00	-0.21246E+00	0.87141E-01
* 1438	*	0.67575E+00	-0.21246E+00	0.87141E-01
* 1439	*	-0.67575E+00	0.87141E-01	0.21246E+00
* 1440	*	0.67575E+00	0.87141E-01	0.21246E+00
* 1441	*	-0.67575E+00	-0.87141E-01	0.21246E+00
* 1442	*	0.67575E+00	-0.87141E-01	0.21246E+00
* 1443	*	-0.65344E+00	0.17072E+00	-0.23160E+00
* 1444	*	0.65344E+00	0.17072E+00	-0.23160E+00
* 1445	*	-0.65344E+00	-0.17072E+00	-0.23160E+00
* 1446	*	0.65344E+00	-0.17072E+00	-0.23160E+00
* 1447	*	-0.65344E+00	0.17072E+00	0.23160E+00
* 1448	*	0.65344E+00	0.17072E+00	0.23160E+00
* 1449	*	-0.65344E+00	-0.17072E+00	0.23160E+00
* 1450	*	0.65344E+00	-0.17072E+00	0.23160E+00
* 1451	*	-0.65344E+00	0.23160E+00	-0.17072E+00
* 1452	*	0.65344E+00	0.23160E+00	-0.17072E+00
* 1453	*	-0.65344E+00	-0.23160E+00	-0.17072E+00
* 1454	*	0.65344E+00	-0.23160E+00	-0.17072E+00
* 1455	*	-0.65344E+00	0.23160E+00	0.17072E+00
* 1456	*	0.65344E+00	0.23160E+00	0.17072E+00
* 1457	*	-0.65344E+00	-0.23160E+00	0.17072E+00
* 1458	*	0.65344E+00	-0.23160E+00	0.17072E+00
* 1459	*	-0.70687E+00	0.74386E-01	-0.74386E-01
* 1460	*	0.70687E+00	0.74386E-01	-0.74386E-01
* 1461	*	-0.70687E+00	-0.74386E-01	-0.74386E-01
* 1462	*	0.70687E+00	-0.74386E-01	-0.74386E-01
* 1463	*	-0.70687E+00	0.74386E-01	0.74386E-01
* 1464	*	0.70687E+00	0.74386E-01	0.74386E-01
* 1465	*	-0.70687E+00	-0.74386E-01	0.74386E-01
* 1466	*	0.70687E+00	-0.74386E-01	0.74386E-01
* 1467	*	-0.43188E+00	0.16230E+00	-0.54636E+00
* 1468	*	0.43188E+00	0.16230E+00	-0.54636E+00
* 1469	*	-0.43188E+00	-0.16230E+00	-0.54636E+00
* 1470	*	0.43188E+00	-0.16230E+00	-0.54636E+00
* 1471	*	-0.43188E+00	0.54636E+00	-0.16230E+00
* 1472	*	0.43188E+00	0.54636E+00	-0.16230E+00
* 1473	*	-0.43188E+00	-0.54636E+00	-0.16230E+00
* 1474	*	0.43188E+00	-0.54636E+00	-0.16230E+00
* 1475	*	-0.43188E+00	0.54636E+00	0.16230E+00
* 1476	*	0.43188E+00	0.54636E+00	0.16230E+00
* 1477	*	-0.43188E+00	-0.54636E+00	0.16230E+00
* 1478	*	0.43188E+00	-0.54636E+00	0.16230E+00
* 1479	*	-0.43188E+00	0.16230E+00	0.54636E+00
* 1480	*	0.43188E+00	0.16230E+00	0.54636E+00
* 1481	*	-0.43188E+00	-0.16230E+00	0.54636E+00
* 1482	*	0.43188E+00	-0.16230E+00	0.54636E+00
* 1483	*	-0.65344E+00	0.93519E-01	-0.27616E+00
* 1484	*	0.65344E+00	0.93519E-01	-0.27616E+00
* 1485	*	-0.65344E+00	-0.93519E-01	-0.27616E+00
* 1486	*	0.65344E+00	-0.93519E-01	-0.27616E+00
* 1487	*	-0.65344E+00	0.27616E+00	-0.93519E-01
* 1488	*	0.65344E+00	0.27616E+00	-0.93519E-01
* 1489	*	-0.65344E+00	-0.27616E+00	-0.93519E-01
* 1490	*	0.65344E+00	-0.27616E+00	-0.93519E-01
* 1491	*	-0.65344E+00	0.27616E+00	0.93519E-01

* 1492	*	0.65344E+00	0.27616E+00	0.93519E-01
* 1493	*	-0.65344E+00	-0.27616E+00	0.93519E-01
* 1494	*	0.65344E+00	-0.27616E+00	0.93519E-01
* 1495	*	-0.65344E+00	0.93519E-01	0.27616E+00
* 1496	*	0.65344E+00	0.93519E-01	0.27616E+00
* 1497	*	-0.65344E+00	-0.93519E-01	0.27616E+00
* 1498	*	0.65344E+00	-0.93519E-01	0.27616E+00
* 1499	*	0.00000E+00	0.37234E+00	-0.61234E+00
* 1500	*	0.00000E+00	-0.37234E+00	-0.61234E+00
* 1501	*	0.00000E+00	-0.61234E+00	-0.37234E+00
* 1502	*	0.00000E+00	0.61234E+00	-0.37234E+00
* 1503	*	0.00000E+00	-0.61234E+00	0.37234E+00
* 1504	*	0.00000E+00	0.61234E+00	0.37234E+00
* 1505	*	0.00000E+00	0.37234E+00	0.61234E+00
* 1506	*	0.00000E+00	-0.37234E+00	0.61234E+00
* 1507	*	-0.40000E-01	-0.37197E+00	-0.61160E+00
* 1508	*	0.40000E-01	-0.37197E+00	-0.61160E+00
* 1509	*	-0.40000E-01	0.61160E+00	-0.37197E+00
* 1510	*	0.40000E-01	0.61160E+00	-0.37197E+00
* 1511	*	-0.40000E-01	-0.61160E+00	0.37197E+00
* 1512	*	0.40000E-01	-0.61160E+00	0.37197E+00
* 1513	*	-0.40000E-01	0.37197E+00	0.61160E+00
* 1514	*	0.40000E-01	0.37197E+00	0.61160E+00
* 1515	*	-0.40000E-01	0.37197E+00	-0.61160E+00
* 1516	*	0.40000E-01	0.37197E+00	-0.61160E+00
* 1517	*	-0.40000E-01	-0.61160E+00	-0.37197E+00
* 1518	*	0.40000E-01	-0.61160E+00	-0.37197E+00
* 1519	*	-0.40000E-01	0.61160E+00	0.37197E+00
* 1520	*	0.40000E-01	0.61160E+00	0.37197E+00
* 1521	*	-0.40000E-01	-0.37197E+00	0.61160E+00
* 1522	*	0.40000E-01	-0.37197E+00	0.61160E+00
* 1523	*	0.00000E+00	0.00000E+00	-0.72000E+00
* 1524	*	0.40000E-01	0.00000E+00	-0.71889E+00
* 1525	*	-0.40000E-01	0.00000E+00	-0.71889E+00
* 1526	*	-0.26033E+00	0.00000E+00	-0.67129E+00
* 1527	*	0.26033E+00	0.00000E+00	-0.67129E+00
* 1528	*	-0.43188E+00	0.00000E+00	-0.57609E+00
* 1529	*	0.43188E+00	0.00000E+00	-0.57609E+00
* 1530	*	-0.40000E-01	0.50833E+00	-0.50833E+00
* 1531	*	0.40000E-01	0.50833E+00	-0.50833E+00
* 1532	*	-0.40000E-01	-0.50833E+00	-0.50833E+00
* 1533	*	0.40000E-01	-0.50833E+00	-0.50833E+00
* 1534	*	-0.43188E+00	0.29809E+00	-0.49012E+00
* 1535	*	0.43188E+00	0.29809E+00	-0.49012E+00
* 1536	*	-0.43188E+00	-0.29809E+00	-0.49012E+00
* 1537	*	0.43188E+00	-0.29809E+00	-0.49012E+00
* 1538	*	-0.55080E+00	0.00000E+00	-0.46375E+00
* 1539	*	0.55080E+00	0.00000E+00	-0.46375E+00
* 1540	*	-0.43188E+00	0.40736E+00	-0.40736E+00
* 1541	*	0.43188E+00	0.40736E+00	-0.40736E+00
* 1542	*	-0.43188E+00	-0.40736E+00	-0.40736E+00
* 1543	*	0.43188E+00	-0.40736E+00	-0.40736E+00
* 1544	*	-0.55080E+00	0.24025E+00	-0.39484E+00
* 1545	*	0.55080E+00	0.24025E+00	-0.39484E+00
* 1546	*	-0.55080E+00	-0.24025E+00	-0.39484E+00
* 1547	*	0.55080E+00	-0.24025E+00	-0.39484E+00
* 1548	*	-0.62664E+00	0.00000E+00	-0.35458E+00
* 1549	*	0.62664E+00	0.00000E+00	-0.35458E+00
* 1550	*	-0.62664E+00	0.99897E-01	-0.33628E+00
* 1551	*	0.62664E+00	0.99897E-01	-0.33628E+00
* 1552	*	-0.62664E+00	-0.99897E-01	-0.33628E+00
* 1553	*	0.62664E+00	-0.99897E-01	-0.33628E+00
* 1554	*	-0.65344E+00	0.00000E+00	-0.30439E+00
* 1555	*	0.65344E+00	0.00000E+00	-0.30439E+00
* 1556	*	-0.62664E+00	0.18347E+00	-0.30167E+00
* 1557	*	0.62664E+00	0.18347E+00	-0.30167E+00
* 1558	*	-0.62664E+00	-0.18347E+00	-0.30167E+00
* 1559	*	0.62664E+00	-0.18347E+00	-0.30167E+00
* 1560	*	-0.43188E+00	-0.49012E+00	-0.29809E+00

* 1561 *	0.43188E+00	-0.49012E+00	-0.29809E+00
* 1562 *	-0.43188E+00	0.49012E+00	-0.29809E+00
* 1563 *	0.43188E+00	0.49012E+00	-0.29809E+00
* 1564 *	-0.62664E+00	0.25073E+00	-0.25073E+00
* 1565 *	0.62664E+00	0.25073E+00	-0.25073E+00
* 1566 *	-0.62664E+00	-0.25073E+00	-0.25073E+00
* 1567 *	0.62664E+00	-0.25073E+00	-0.25073E+00
* 1568 *	-0.67575E+00	0.00000E+00	-0.25064E+00
* 1569 *	0.67575E+00	0.00000E+00	-0.25064E+00
* 1570 *	-0.55080E+00	-0.39484E+00	-0.24025E+00
* 1571 *	0.55080E+00	-0.39484E+00	-0.24025E+00
* 1572 *	-0.55080E+00	0.39484E+00	-0.24025E+00
* 1573 *	0.55080E+00	0.39484E+00	-0.24025E+00
* 1574 *	-0.69356E+00	0.00000E+00	-0.19333E+00
* 1575 *	0.69356E+00	0.00000E+00	-0.19333E+00
* 1576 *	-0.62664E+00	-0.30167E+00	-0.18347E+00
* 1577 *	0.62664E+00	-0.30167E+00	-0.18347E+00
* 1578 *	-0.62664E+00	0.30167E+00	-0.18347E+00
* 1579 *	0.62664E+00	0.30167E+00	-0.18347E+00
* 1580 *	-0.70687E+00	0.00000E+00	-0.13245E+00
* 1581 *	0.70687E+00	0.00000E+00	-0.13245E+00
* 1582 *	-0.62664E+00	0.33628E+00	-0.99897E-01
* 1583 *	0.62664E+00	0.33628E+00	-0.99897E-01
* 1584 *	-0.62664E+00	-0.33628E+00	-0.99897E-01
* 1585 *	0.62664E+00	-0.33628E+00	-0.99897E-01
* 1586 *	-0.71568E+00	0.00000E+00	-0.68008E-01
* 1587 *	0.71568E+00	0.00000E+00	-0.68008E-01
* 1588 *	0.00000E+00	0.72000E+00	0.00000E+00
* 1589 *	-0.43188E+00	0.57609E+00	0.00000E+00
* 1590 *	0.43188E+00	0.57609E+00	0.00000E+00
* 1591 *	-0.43188E+00	-0.57609E+00	0.00000E+00
* 1592 *	0.43188E+00	-0.57609E+00	0.00000E+00
* 1593 *	0.00000E+00	-0.72000E+00	0.00000E+00
* 1594 *	0.40000E-01	0.71889E+00	0.00000E+00
* 1595 *	-0.40000E-01	0.71889E+00	0.00000E+00
* 1596 *	0.40000E-01	-0.71889E+00	0.00000E+00
* 1597 *	-0.40000E-01	-0.71889E+00	0.00000E+00
* 1598 *	-0.62664E+00	0.35458E+00	0.00000E+00
* 1599 *	0.62664E+00	0.35458E+00	0.00000E+00
* 1600 *	-0.62664E+00	-0.35458E+00	0.00000E+00
* 1601 *	0.62664E+00	-0.35458E+00	0.00000E+00
* 1602 *	-0.55080E+00	0.46375E+00	0.00000E+00
* 1603 *	0.55080E+00	0.46375E+00	0.00000E+00
* 1604 *	-0.55080E+00	-0.46375E+00	0.00000E+00
* 1605 *	0.55080E+00	-0.46375E+00	0.00000E+00
* 1606 *	-0.67575E+00	0.25064E+00	0.00000E+00
* 1607 *	0.67575E+00	0.25064E+00	0.00000E+00
* 1608 *	-0.67575E+00	-0.25064E+00	0.00000E+00
* 1609 *	0.67575E+00	-0.25064E+00	0.00000E+00
* 1610 *	-0.65344E+00	0.30439E+00	0.00000E+00
* 1611 *	0.65344E+00	0.30439E+00	0.00000E+00
* 1612 *	-0.65344E+00	-0.30439E+00	0.00000E+00
* 1613 *	0.65344E+00	-0.30439E+00	0.00000E+00
* 1614 *	-0.70687E+00	0.13245E+00	0.00000E+00
* 1615 *	0.70687E+00	0.13245E+00	0.00000E+00
* 1616 *	-0.70687E+00	-0.13245E+00	0.00000E+00
* 1617 *	0.70687E+00	-0.13245E+00	0.00000E+00
* 1618 *	-0.26033E+00	0.67129E+00	0.00000E+00
* 1619 *	0.26033E+00	0.67129E+00	0.00000E+00
* 1620 *	-0.26033E+00	-0.67129E+00	0.00000E+00
* 1621 *	0.26033E+00	-0.67129E+00	0.00000E+00
* 1622 *	-0.71568E+00	0.68008E-01	0.00000E+00
* 1623 *	0.71568E+00	0.68008E-01	0.00000E+00
* 1624 *	-0.71568E+00	-0.68008E-01	0.00000E+00
* 1625 *	0.71568E+00	-0.68008E-01	0.00000E+00
* 1626 *	-0.69356E+00	0.19333E+00	0.00000E+00
* 1627 *	0.69356E+00	0.19333E+00	0.00000E+00
* 1628 *	-0.72000E+00	0.00000E+00	0.00000E+00
* 1629 *	0.72000E+00	0.00000E+00	0.00000E+00

* 1630 *	-0.69356E+00	-0.19333E+00	0.00000E+00
* 1631 *	0.69356E+00	-0.19333E+00	0.00000E+00
* 1632 *	-0.71568E+00	0.00000E+00	0.68008E-01
* 1633 *	0.71568E+00	0.00000E+00	0.68008E-01
* 1634 *	-0.62664E+00	0.33628E+00	0.99897E-01
* 1635 *	0.62664E+00	0.33628E+00	0.99897E-01
* 1636 *	-0.62664E+00	-0.33628E+00	0.99897E-01
* 1637 *	0.62664E+00	-0.33628E+00	0.99897E-01
* 1638 *	-0.70687E+00	0.00000E+00	0.13245E+00
* 1639 *	0.70687E+00	0.00000E+00	0.13245E+00
* 1640 *	-0.62664E+00	0.30167E+00	0.18347E+00
* 1641 *	0.62664E+00	0.30167E+00	0.18347E+00
* 1642 *	-0.62664E+00	-0.30167E+00	0.18347E+00
* 1643 *	0.62664E+00	-0.30167E+00	0.18347E+00
* 1644 *	-0.69356E+00	0.00000E+00	0.19333E+00
* 1645 *	0.69356E+00	0.00000E+00	0.19333E+00
* 1646 *	-0.55080E+00	-0.39484E+00	0.24025E+00
* 1647 *	0.55080E+00	-0.39484E+00	0.24025E+00
* 1648 *	-0.55080E+00	0.39484E+00	0.24025E+00
* 1649 *	0.55080E+00	0.39484E+00	0.24025E+00
* 1650 *	-0.67575E+00	0.00000E+00	0.25064E+00
* 1651 *	0.67575E+00	0.00000E+00	0.25064E+00
* 1652 *	-0.62664E+00	0.25073E+00	0.25073E+00
* 1653 *	0.62664E+00	0.25073E+00	0.25073E+00
* 1654 *	-0.62664E+00	-0.25073E+00	0.25073E+00
* 1655 *	0.62664E+00	-0.25073E+00	0.25073E+00
* 1656 *	-0.43188E+00	0.49012E+00	0.29809E+00
* 1657 *	0.43188E+00	0.49012E+00	0.29809E+00
* 1658 *	-0.43188E+00	-0.49012E+00	0.29809E+00
* 1659 *	0.43188E+00	-0.49012E+00	0.29809E+00
* 1660 *	-0.62664E+00	0.18347E+00	0.30167E+00
* 1661 *	0.62664E+00	0.18347E+00	0.30167E+00
* 1662 *	-0.62664E+00	-0.18347E+00	0.30167E+00
* 1663 *	0.62664E+00	-0.18347E+00	0.30167E+00
* 1664 *	-0.65344E+00	0.00000E+00	0.30439E+00
* 1665 *	0.65344E+00	0.00000E+00	0.30439E+00
* 1666 *	-0.62664E+00	0.99897E-01	0.33628E+00
* 1667 *	0.62664E+00	0.99897E-01	0.33628E+00
* 1668 *	-0.62664E+00	-0.99897E-01	0.33628E+00
* 1669 *	0.62664E+00	-0.99897E-01	0.33628E+00
* 1670 *	-0.62664E+00	0.00000E+00	0.35458E+00
* 1671 *	0.62664E+00	0.00000E+00	0.35458E+00
* 1672 *	-0.55080E+00	0.24025E+00	0.39484E+00
* 1673 *	0.55080E+00	0.24025E+00	0.39484E+00
* 1674 *	-0.55080E+00	-0.24025E+00	0.39484E+00
* 1675 *	0.55080E+00	-0.24025E+00	0.39484E+00
* 1676 *	-0.43188E+00	0.40736E+00	0.40736E+00
* 1677 *	0.43188E+00	0.40736E+00	0.40736E+00
* 1678 *	-0.43188E+00	-0.40736E+00	0.40736E+00
* 1679 *	0.43188E+00	-0.40736E+00	0.40736E+00
* 1680 *	-0.55080E+00	0.00000E+00	0.46375E+00
* 1681 *	0.55080E+00	0.00000E+00	0.46375E+00
* 1682 *	-0.43188E+00	-0.29809E+00	0.49012E+00
* 1683 *	0.43188E+00	-0.29809E+00	0.49012E+00
* 1684 *	-0.43188E+00	0.29809E+00	0.49012E+00
* 1685 *	0.43188E+00	0.29809E+00	0.49012E+00
* 1686 *	-0.40000E-01	0.50833E+00	0.50833E+00
* 1687 *	0.40000E-01	0.50833E+00	0.50833E+00
* 1688 *	-0.40000E-01	-0.50833E+00	0.50833E+00
* 1689 *	0.40000E-01	-0.50833E+00	0.50833E+00
* 1690 *	-0.43188E+00	0.00000E+00	0.57609E+00
* 1691 *	0.43188E+00	0.00000E+00	0.57609E+00
* 1692 *	-0.26033E+00	0.00000E+00	0.67129E+00
* 1693 *	0.26033E+00	0.00000E+00	0.67129E+00
* 1694 *	0.40000E-01	0.00000E+00	0.71889E+00
* 1695 *	-0.40000E-01	0.00000E+00	0.71889E+00
* 1696 *	0.00000E+00	0.00000E+00	0.72000E+00

ELEMENTS

[illegible]

* 18*	140	142	170	172	161	163	182	184	141	165	166	171	147 &
	148	174	175	162	177	178	183						
HEXA20P	MAVART8D	13											
* 19*	133	186	142	193	154	202	163	209	185	136	190	192	145 &
	197	148	199	201	157	206	208						
HEXA20P	MAVART8D	14											
* 20*	186	188	193	195	202	204	209	211	187	190	191	194	197 &
	198	199	200	203	206	207	210						
HEXA20P	MAVART8D	15											
* 21*	188	1	195	12	204	27	211	38	189	191	8	196	198 &
	19	200	23	205	207	34	212						
HEXA20P	MAVART8D	13											
* 22*	142	193	172	216	163	209	184	225	192	166	213	215	148 &
	199	175	220	208	178	222	224						
HEXA20P	MAVART8D	14											
* 23*	193	195	216	218	209	211	225	227	194	213	214	217	199 &
	200	220	221	210	222	223	226						
HEXA20P	MAVART8D	15											
* 24*	195	12	218	49	211	38	227	64	196	214	45	219	200 &
	23	221	56	212	223	60	228						
SHEL06C	ST4340	1											
* 25*	38	40	235	39	230	229							
* 26*	235	40	237	230	231	236							
* 27*	40	42	237	41	232	231							
* 28*	237	42	239	232	233	238							
* 29*	42	44	239	43	234	233							
* 30*	235	237	244	236	241	240							
* 31*	244	237	246	241	242	245							
* 32*	237	239	246	238	243	242							
* 33*	244	246	249	245	248	247							
* 34*	44	102	239	101	250	234							
* 35*	239	102	256	250	251	255							
* 36*	102	104	256	103	252	251							
* 37*	256	104	258	252	253	257							
* 38*	104	106	258	105	254	253							
* 39*	239	256	246	255	259	243							
* 40*	246	256	263	259	260	262							
* 41*	256	258	263	257	261	260							
* 42*	246	263	249	262	264	248							
* 43*	106	159	258	158	265	254							
* 44*	258	159	271	265	266	270							
* 45*	159	161	271	160	267	266							
* 46*	271	161	273	267	268	272							
* 47*	161	163	273	162	269	268							
* 48*	258	271	263	270	274	261							
* 49*	263	271	278	274	275	277							
* 50*	271	273	278	272	276	275							
* 51*	263	278	249	277	279	264							
* 52*	163	209	273	208	280	269							
* 53*	273	209	285	280	281	284							
* 54*	209	211	285	210	282	281							
* 55*	285	211	235	282	283	286							
* 56*	211	38	235	212	229	283							
* 57*	273	285	278	284	287	276							
* 58*	278	285	244	287	288	289							
* 59*	285	235	244	286	240	288							
* 60*	278	244	249	289	247	279							
* 61*	12	14	296	13	291	290							
* 62*	296	14	298	291	292	297							
* 63*	14	16	298	15	293	292							
* 64*	298	16	300	293	294	299							
* 65*	16	18	300	17	295	294							

* 66*	296	298	305	297	302	301
* 67*	305	298	307	302	303	306
* 68*	298	300	307	299	304	303
* 69*	305	307	310	306	309	308
* 70*	18	81	300	80	311	295
* 71*	300	81	317	311	312	316
* 72*	81	83	317	82	313	312
* 73*	317	83	319	313	314	318
* 74*	83	85	319	84	315	314
* 75*	300	317	307	316	320	304
* 76*	307	317	324	320	321	323
* 77*	317	319	324	318	322	321
* 78*	307	324	310	323	325	309
* 79*	85	138	319	137	326	315
* 80*	319	138	332	326	327	331
* 81*	138	140	332	139	328	327
* 82*	332	140	334	328	329	333
* 83*	140	142	334	141	330	329
* 84*	319	332	324	331	335	322
* 85*	324	332	339	335	336	338
* 86*	332	334	339	333	337	336
* 87*	324	339	310	338	340	325
* 88*	142	193	334	192	341	330
* 89*	334	193	346	341	342	345
* 90*	193	195	346	194	343	342
* 91*	346	195	296	343	344	347
* 92*	195	12	296	196	290	344
* 93*	334	346	339	345	348	337
* 94*	339	346	305	348	349	350
* 95*	346	296	305	347	301	349
* 96*	339	305	310	350	308	340

QUAD08E	FICFIBER	2				
* 97*	1	3	27	29	2	19 20 28
* 98*	3	5	29	31	4	20 21 30
* 99*	5	7	31	33	6	21 22 32
100	7	72	33	93	71	22 86 92
101	72	74	93	95	73	86 87 94
102	74	76	95	97	75	87 88 96
103	76	129	97	150	128	88 143 149
104	129	131	150	152	130	143 144 151
105	131	133	152	154	132	144 145 153
106	133	186	154	202	185	145 197 201
107	186	188	202	204	187	197 198 203
108	188	1	204	27	189	198 19 205

TRIA12I	0										
109	352	370	374	249	246	244	354	364	358	248	245 247
110	374	406	440	244	237	235	384	418	398	241	236 240
111	374	370	406	244	246	237	364	380	384	245	242 241
112	370	436	406	246	239	237	394	414	380	243	238 242
113	440	560	578	235	40	38	474	548	488	230	39 229
114	440	406	560	235	237	40	418	458	474	236	231 230
115	406	566	560	237	42	40	454	584	458	232	41 231
116	406	436	566	237	239	42	414	470	454	238	233 232
117	436	574	566	239	44	42	484	544	470	234	43 233
118	352	372	370	249	263	246	356	362	354	264	262 248
119	370	404	436	246	256	239	378	412	394	259	255 243
120	370	372	404	246	263	256	362	382	378	262	260 259
121	372	438	404	263	258	256	396	416	382	261	257 260
122	436	558	574	239	102	44	468	542	484	250	101 234
123	436	404	558	239	256	102	412	452	468	255	251 250
124	404	568	558	256	104	102	456	582	452	252	103 251
125	404	438	568	256	258	104	416	472	456	257	253 252
126	438	576	568	258	106	104	486	546	472	254	105 253
127	352	376	372	249	278	263	360	366	356	279	277 264
128	372	408	438	263	271	258	386	420	396	274	270 261
129	372	376	408	263	278	271	366	390	386	277	275 274
130	376	442	408	278	273	271	400	424	390	276	272 275

131	438	562	576	258	159	106	476	550	486	265	158	254
132	438	408	562	258	271	159	420	460	476	270	266	265
133	408	572	562	271	161	159	464	586	460	267	160	266
134	408	442	572	271	273	161	424	480	464	272	268	267
135	442	580	572	273	163	161	490	554	480	269	162	268
136	352	374	376	249	244	278	358	368	360	247	289	279
137	376	410	442	278	285	273	392	426	400	287	284	276
138	376	374	410	278	244	285	368	388	392	289	288	287
139	374	440	410	244	235	285	398	422	388	240	286	288
140	442	564	580	273	209	163	482	556	490	280	208	269
141	442	410	564	273	285	209	426	466	482	284	281	280
142	410	570	564	285	211	209	462	588	466	282	210	281
143	410	440	570	285	235	211	422	478	462	286	283	282
144	440	578	570	235	38	211	448	552	478	229	212	283
145	369	373	351	307	305	310	363	357	353	306	308	309
146	435	405	369	300	298	307	413	379	393	299	303	304
147	369	405	373	307	298	305	379	383	363	303	302	306
148	405	439	373	298	296	305	417	397	383	297	301	302
149	573	565	435	18	16	300	543	469	483	17	294	295
150	435	565	405	300	16	298	469	453	413	294	293	299
151	565	559	405	16	14	298	583	457	453	15	292	293
152	405	559	439	298	14	296	457	473	417	292	291	297
153	559	577	439	14	12	296	547	487	473	13	290	291
154	371	369	351	324	307	310	361	353	355	323	309	325
155	437	403	371	319	317	324	415	381	395	318	321	322
156	371	403	369	324	317	307	381	377	361	321	320	323
157	403	435	369	317	300	307	411	393	377	316	304	320
158	575	567	437	85	83	319	545	471	485	84	314	315
159	437	567	403	319	83	317	471	455	415	314	313	318
160	567	557	403	83	81	317	581	451	455	82	312	313
161	403	557	435	317	81	300	451	467	411	312	311	316
162	557	573	435	81	18	300	541	483	467	80	295	311
163	375	371	351	339	324	310	365	355	359	338	325	340
164	441	407	375	334	332	339	423	389	399	333	336	337
165	375	407	371	339	332	324	389	385	365	336	335	338
166	407	437	371	332	319	324	419	395	385	331	322	335
167	579	571	441	142	140	334	553	479	489	141	329	330
168	441	571	407	334	140	332	479	463	423	329	328	333
169	571	561	407	140	138	332	585	459	463	139	327	328
170	407	561	437	332	138	319	459	475	419	327	326	331
171	561	575	437	138	85	319	549	485	475	137	315	326
172	373	375	351	305	339	310	367	359	357	350	340	308
173	439	409	373	296	346	305	421	387	397	347	349	301
174	373	409	375	305	346	339	387	391	367	349	348	350
175	409	441	375	346	334	339	425	399	391	345	337	348
176	577	569	439	12	195	296	551	477	487	196	344	290
177	439	569	409	296	195	346	477	461	421	344	343	347
178	569	563	409	195	193	346	587	465	461	194	342	343
179	409	563	441	346	193	334	465	481	425	342	341	345
180	563	579	441	193	142	334	555	489	481	192	330	341

QUAD16I

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181	560	578	750	766	40	38	29	27	548	658	674	724	39 &
	35	34	28										
182	566	560	748	750	42	40	31	29	584	656	658	772	41 &
	36	35	30										
183	574	566	762	748	44	42	33	31	544	670	656	720	43 &
	37	36	32										
184	558	574	746	762	102	44	93	33	542	654	670	718	101 &
	98	37	92										
185	568	558	752	746	104	102	95	93	582	660	654	770	103 &
	99	98	94										
186	576	568	764	752	106	104	97	95	546	672	660	722	105 &
	100	99	96										
187	562	576	756	764	159	106	150	97	550	664	672	726	158 &
	155	100	149										
188	572	562	758	756	161	159	152	150	586	666	664	774	160 &
	156	155	151										
189	580	572	768	758	163	161	154	152	554	676	666	730	162 &

	157	156	153											
190	564	580	760	768	209	163	202	154	556	668	676	732	208	&
	206	157	201											
191	570	564	754	760	211	209	204	202	588	662	668	776	210	&
	207	206	203											
192	578	570	766	754	38	211	27	204	552	674	662	728	212	&
	34	207	205											
193	749	765	750	766	3	1	29	27	723	734	743	724	2	&
	20	19	28											
194	747	749	748	750	5	3	31	29	771	737	734	772	4	&
	21	20	30											
195	761	747	762	748	7	5	33	31	719	741	737	720	6	&
	22	21	32											
196	745	761	746	762	72	7	93	33	717	733	741	718	71	&
	86	22	92											
197	751	745	752	746	74	72	95	93	769	738	733	770	73	&
	87	86	94											
198	763	751	764	752	76	74	97	95	721	742	738	722	75	&
	88	87	96											
199	755	763	756	764	129	76	150	97	725	735	742	726	128	&
	143	88	149											
200	757	755	758	756	131	129	152	150	773	740	735	774	130	&
	144	143	151											
201	767	757	768	758	133	131	154	152	729	744	740	730	132	&
	145	144	153											
202	759	767	760	768	186	133	202	154	731	736	744	732	185	&
	197	145	201											
203	753	759	754	760	188	186	204	202	775	739	736	776	187	&
	198	197	203											
204	765	753	766	754	1	188	27	204	727	743	739	728	189	&
	19	198	205											
205	559	577	749	765	14	12	3	1	547	657	673	723	13	&
	9	8	2											
206	565	559	747	749	16	14	5	3	583	655	657	771	15	&
	10	9	4											
207	573	565	761	747	18	16	7	5	543	669	655	719	17	&
	11	10	6											
208	557	573	745	761	81	18	72	7	541	653	669	717	80	&
	77	11	71											
209	567	557	751	745	83	81	74	72	581	659	653	769	82	&
	78	77	73											
210	575	567	763	751	85	83	76	74	545	671	659	721	84	&
	79	78	75											
211	561	575	755	763	138	85	129	76	549	663	671	725	137	&
	134	79	128											
212	571	561	757	755	140	138	131	129	585	665	663	773	139	&
	135	134	130											
213	579	571	767	757	142	140	133	131	553	675	665	729	141	&
	136	135	132											
214	563	579	759	767	193	142	186	133	555	667	675	731	192	&
	190	136	185											
215	569	563	753	759	195	193	188	186	587	661	667	775	194	&
	191	190	187											
216	577	569	765	753	12	195	1	188	551	673	661	727	196	&
	8	191	189											
PRIS15F	EAU	0												
217	578	560	440	814	796	642	548	474	488	650	624	496	784	&
	704	714												
218	560	406	440	796	592	642	458	418	474	624	446	496	684	&
	612	704												
219	560	566	406	796	802	592	584	454	458	624	630	446	820	&
	680	684												
220	566	436	406	802	638	592	470	414	454	630	492	446	696	&
	608	680												
221	566	574	436	802	810	638	544	484	470	630	646	492	780	&
	710	696												
222	440	406	374	642	592	538	418	384	398	496	446	432	612	&
	524	602												

223	406	370	374	592	534	538	380	364	384	446	428	432	520	&
	504	524												
224	406	436	370	592	638	534	414	394	380	446	492	428	608	&
	598	520												
225	374	370	352	538	534	500	364	354	358	432	428	402	504	&
	510	514												
226	574	558	436	810	794	638	542	468	484	646	622	492	778	&
	694	710												
227	558	404	436	794	590	638	452	412	468	622	444	492	678	&
	606	694												
228	558	568	404	794	804	590	582	456	452	622	632	444	818	&
	682	678												
229	568	438	404	804	640	590	472	416	456	632	494	444	702	&
	610	682												
230	568	576	438	804	812	640	546	486	472	632	648	494	782	&
	712	702												
231	436	404	370	638	590	534	412	378	394	492	444	428	606	&
	518	598												
232	404	372	370	590	536	534	382	362	378	444	430	428	522	&
	502	518												
233	404	438	372	590	640	536	416	396	382	444	494	430	610	&
	600	522												
234	370	372	352	534	536	500	362	356	354	428	430	402	502	&
	512	510												
235	576	562	438	812	798	640	550	476	486	648	626	494	786	&
	706	712												
236	562	408	438	798	594	640	460	420	476	626	448	494	686	&
	614	706												
237	562	572	408	798	808	594	586	464	460	626	636	448	822	&
	690	686												
238	572	442	408	808	644	594	480	424	464	636	498	448	698	&
	618	690												
239	572	580	442	808	816	644	554	490	480	636	652	498	790	&
	716	698												
240	438	408	372	640	594	536	420	386	396	494	448	430	614	&
	526	600												
241	408	376	372	594	540	536	390	366	386	448	434	430	530	&
	506	526												
242	408	442	376	594	644	540	424	400	390	448	498	434	618	&
	604	530												
243	372	376	352	536	540	500	366	360	356	430	434	402	506	&
	516	512												
244	580	564	442	816	800	644	556	482	490	652	628	498	792	&
	700	716												
245	564	410	442	800	596	644	466	426	482	628	450	498	692	&
	620	700												
246	564	570	410	800	806	596	588	462	466	628	634	450	824	&
	688	692												
247	570	440	410	806	642	596	478	422	462	634	496	450	708	&
	616	688												
248	570	578	440	806	814	642	552	488	478	634	650	496	788	&
	714	708												
249	442	410	376	644	596	540	426	392	400	498	450	434	620	&
	532	604												
250	410	374	376	596	538	540	388	368	392	450	432	434	528	&
	508	532												
251	410	440	374	596	642	538	422	398	388	450	496	432	616	&
	602	528												
252	376	374	352	540	538	500	368	358	360	434	432	402	508	&
	514	516												
253	814	796	642	1202	1152	1270	784	704	714	920	904	848	1106	&
	1010	1262												
254	796	592	642	1152	950	1270	684	612	704	904	830	848	994	&
	962	1010												
255	796	802	592	1152	1150	950	820	680	684	904	902	830	1252	&
	990	994												
256	802	638	592	1150	1266	950	696	608	680	902	844	830	1006	&
	958	990												
257	802	810	638	1150	1197	1266	780	710	696	902	916	844	1102	&

292	801 413	637 453	591	565	435	405	695	607	679	629	491	445	469 &
293	801 483	809 469	637	565	573	435	779	709	695	629	645	491	543 &
294	641 383	591 397	537	439	405	373	611	523	601	495	445	431	417 &
295	591 363	533 383	537	405	369	373	519	503	523	445	427	431	379 &
296	591 393	637 379	533	405	435	369	607	597	519	445	491	427	413 &
297	537 353	533 357	499	373	369	351	503	509	513	431	427	401	363 &
298	809 467	793 483	637	573	557	435	777	693	709	645	621	491	541 &
299	793 411	589 467	637	557	403	435	677	605	693	621	443	491	451 &
300	793 455	803 451	589	557	567	403	817	681	677	621	631	443	581 &
301	803 415	639 455	589	567	437	403	701	609	681	631	493	443	471 &
302	803 485	811 471	639	567	575	437	781	711	701	631	647	493	545 &
303	637 377	589 393	533	435	403	369	605	517	597	491	443	427	411 &
304	589 361	535 377	533	403	371	369	521	501	517	443	429	427	381 &
305	589 395	639 381	535	403	437	371	609	599	521	443	493	429	415 &
306	533 355	535 353	499	369	371	351	501	511	509	427	429	401	361 &
307	811 475	797 485	639	575	561	437	785	705	711	647	625	493	549 &
308	797 419	593 475	639	561	407	437	685	613	705	625	447	493	459 &
309	797 463	807 459	593	561	571	407	821	689	685	625	635	447	585 &
310	807 423	643 463	593	571	441	407	697	617	689	635	497	447	479 &
311	807 489	815 479	643	571	579	441	789	715	697	635	651	497	553 &
312	639 385	593 395	535	437	407	371	613	525	599	493	447	429	419 &
313	593 365	539 385	535	407	375	371	529	505	525	447	433	429	389 &
314	593 399	643 389	539	407	441	375	617	603	529	447	497	433	423 &
315	535 359	539 355	499	371	375	351	505	515	511	429	433	401	365 &
316	815 481	799 489	643	579	563	441	791	699	715	651	627	497	555 &
317	799 425	595 481	643	563	409	441	691	619	699	627	449	497	465 &
318	799 461	805 465	595	563	569	409	823	687	691	627	633	449	587 &
319	805 421	641 461	595	569	439	409	707	615	687	633	495	449	477 &
320	805 487	813 477	641	569	577	439	787	713	707	633	649	495	551 &
321	643 391	595 399	539	441	409	375	619	531	603	497	449	433	425 &
322	595 367	537 391	539	409	373	375	527	507	531	449	431	433	387 &
323	595 397	641 387	537	409	439	373	615	601	527	449	495	431	421 &
324	539 357	537 359	499	375	373	351	507	513	515	433	431	401	367 &
325	1201 703	1151 713	1269	813	795	641	1105	1009	1261	919	903	847	783 &
326	1151	949	1269	795	591	641	993	961	1009	903	829	847	683 &

361	1202 1222 928 904	814 1152 1136	796 1242	944 920 1106 1054	784 1070 &
362	1152 1136 926 902	796 1150 1132	802 1070	928 904 1252 1238	820 1060 &
363	1150 1132 940 916	802 1197 1218	810 1060	926 902 1102 1044	780 1234 &
364	1197 1218 924 900	810 1148 1134	794 1234	940 916 1100 1052	778 1068 &
365	1148 1134 930 906	794 1154 1138	804 1068	924 900 1250 1236	818 1062 &
366	1154 1138 942 918	804 1200 1220	812 1062	930 906 1104 1046	782 1240 &
367	1200 1220 934 908	812 1156 1140	798 1240	942 918 1108 1056	786 1072 &
368	1156 1140 936 912	798 1160 1144	808 1072	934 908 1254 1244	822 1066 &
369	1160 1144 946 922	808 1207 1224	816 1066	936 912 1112 1050	790 1248 &
370	1207 1224 938 914	816 1162 1146	800 1248	946 922 1114 1058	792 1074 &
371	1162 1146 932 910	800 1158 1142	806 1074	938 914 1256 1246	824 1064 &
372	1158 1142 944 920	806 1202 1222	814 1064	932 910 1110 1048	788 1242 &
373	1222 1213 881 856	766 1136 1120	750 1184	896 872 1054 1030	724 1080 &
374	1136 1120 875 852	750 1132 1118	748 1080	881 856 1238 1228	772 1078 &
375	1132 1118 892 868	748 1218 1209	762 1078	875 852 1044 1036	720 1180 &
376	1218 1209 877 854	762 1134 1116	746 1180	892 868 1052 1028	718 1076 &
377	1134 1116 879 864	746 1138 1122	752 1076	877 854 1236 1226	770 1082 &
378	1138 1122 894 870	752 1220 1211	764 1082	879 864 1046 1037	722 1182 &
379	1220 1211 883 858	764 1140 1124	756 1182	894 870 1056 1032	726 1086 &
380	1140 1124 889 862	756 1144 1128	758 1086	883 858 1244 1230	774 1090 &
381	1144 1128 898 874	758 1224 1215	768 1090	889 862 1050 1042	730 1186 &
382	1224 1215 887 860	768 1146 1130	760 1186	898 874 1058 1034	732 1088 &
383	1146 1130 885 866	760 1142 1126	754 1088	887 860 1246 1232	776 1084 &
384	1142 1126 896 872	754 1222 1213	766 1084	885 866 1048 1040	728 1184 &
385	1214 1221 855 882	765 1119 1135	749 1183	871 895 1029 1053	723 1079 &
386	1119 1135 851 876	749 1117 1131	747 1079	855 882 1227 1237	771 1077 &
387	1117 1131 867 891	747 1210 1217	761 1077	851 876 1035 1043	719 1179 &
388	1210 1217 853 878	761 1115 1133	745 1179	867 891 1027 1051	717 1075 &
389	1115 1133 863 880	745 1121 1137	751 1075	853 878 1225 1235	769 1081 &
390	1121 1137 869 893	751 1212 1219	763 1081	863 880 1038 1045	721 1181 &
391	1212 1219 857 884	763 1123 1139	755 1181	869 893 1031 1055	725 1085 &
392	1123 1139 861 890	755 1127 1143	757 1085	857 884 1229 1243	773 1089 &
393	1127 1143 873 897	757 1216 1223	767 1089	861 890 1041 1049	729 1185 &
394	1216 1223 859 888	767 1129 1145	759 1185	873 897 1033 1057	731 1087 &
395	1129 1145	759 1125 1141	753 1087	859 888 1231 1245	775 1083 &

429	1127	1216	757	767	1128	1215	758	768	1041	890	897	729	1098	&
	1208	740	744	1042	889	898	730							
430	1216	1129	767	759	1215	1130	768	760	1033	897	888	731	1208	&
	1097	744	736	1034	898	887	732							
431	1129	1125	759	753	1130	1126	760	754	1231	888	886	775	1097	&
	1096	736	739	1232	887	885	776							
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	1203	739	743	1040	885	896	728							
433	1221	1135	813	795	765	749	577	559	1053	943	927	783	871	&
	855	649	623	723	673	657	547							
434	1135	1131	795	801	749	747	559	565	1237	927	925	819	855	&
	851	623	629	771	657	655	583							
435	1131	1217	801	809	747	761	565	573	1043	925	939	779	851	&
	867	629	645	719	655	669	543							
436	1217	1133	809	793	761	745	573	557	1051	939	923	777	867	&
	853	645	621	717	669	653	541							
437	1133	1137	793	803	745	751	557	567	1235	923	929	817	853	&
	863	621	631	769	653	659	581							
438	1137	1219	803	811	751	763	567	575	1045	929	941	781	863	&
	869	631	647	721	659	671	545							
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	857	647	625	725	671	663	549							
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	861	625	635	773	663	665	585							
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	873	635	651	729	665	675	553							
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	859	651	627	731	675	667	555							
443	1145	1141	799	805	759	753	563	569	1245	937	931	823	859	&
	865	627	633	775	667	661	587							
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	871	633	649	727	661	673	551							

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445	1202	1152	1270	1601	1577	1609	1106	1010	1262	1326	1302	1358	1585	&	
	1490	1613													
446	1152	950	1270	1577	1374	1609	994	962	1010	1302	1276	1358	1454	&	
	1434	1490													
447	1152	1150	950	1577	1559	1374	1252	990	994	1302	1300	1276	1567	&	
	1446	1454													
448	1150	1266	950	1559	1569	1374	1006	958	990	1300	1354	1276	1486	&	
	1430	1446													
449	1150	1197	1266	1559	1549	1569	1102	1258	1006	1300	1322	1354	1553	&	
	1555	1486													
450	1270	950	1176	1609	1374	1617	962	978	1192	1358	1276	1350	1434	&	
	1418	1631													
451	950	1172	1176	1374	1581	1617	974	1022	978	1276	1346	1350	1414	&	
	1462	1418													
452	950	1266	1172	1374	1569	1581	958	1188	974	1276	1354	1346	1430	&	
	1575	1414													
453	1176	1172	1205	1617	1581	1629	1022	1164	1168	1350	1346	1370	1462	&	
	1587	1625													
454	1197	1148	1266	1549	1557	1569	1100	1004	1258	1322	1298	1354	1551	&	
	1484	1555													
455	1148	948	1266	1557	1372	1569	988	956	1004	1298	1274	1354	1444	&	
	1428	1484													
456	1148	1154	948	1557	1579	1372	1250	992	988	1298	1304	1274	1565	&	
	1452	1444													
457	1154	1268	948	1579	1607	1372	1008	960	992	1304	1356	1274	1488	&	
	1432	1452													
458	1154	1200	1268	1579	1599	1607	1104	1260	1008	1304	1324	1356	1583	&	
	1611	1488													
459	1266	948	1172	1569	1372	1581	956	972	1188	1354	1274	1346	1428	&	
	1412	1575													
460	948	1174	1172	1372	1615	1581	976	1020	972	1274	1348	1346	1416	&	
	1460	1412													
461	948	1268	1174	1372	1607	1615	960	1190	976	1274	1356	1348	1432	&	
	1627	1416													
462	1172	1174	1205	1581	1615	1629	1020	1166	1164	1346	1348	1370	1460	&	

	1623	1587																			
463	1200	1156	1268	1599	1641	1607	1108	1012	1260	1324	1306	1356	1635	&							
	1492	1611																			
464	1156	952	1268	1641	1376	1607	996	964	1012	1306	1278	1356	1456	&							
	1436	1492																			
465	1156	1160	952	1641	1661	1376	1254	1000	996	1306	1310	1278	1653	&							
	1448	1456																			
466	1160	1272	952	1661	1651	1376	1016	968	1000	1310	1360	1278	1496	&							
	1440	1448																			
467	1160	1207	1272	1661	1671	1651	1112	1264	1016	1310	1328	1360	1667	&							
	1665	1496																			
468	1268	952	1174	1607	1376	1615	964	980	1190	1356	1278	1348	1436	&							
	1420	1627																			
469	952	1178	1174	1376	1639	1615	984	1024	980	1278	1352	1348	1424	&							
	1464	1420																			
470	952	1272	1178	1376	1651	1639	968	1194	984	1278	1360	1352	1440	&							
	1645	1424																			
471	1174	1178	1205	1615	1639	1629	1024	1170	1166	1348	1352	1370	1464	&							
	1633	1623																			
472	1207	1162	1272	1671	1663	1651	1114	1018	1264	1328	1312	1360	1669	&							
	1498	1665																			
473	1162	954	1272	1663	1378	1651	1002	970	1018	1312	1280	1360	1450	&							
	1442	1498																			
474	1162	1158	954	1663	1643	1378	1256	998	1002	1312	1308	1280	1655	&							
	1458	1450																			
475	1158	1270	954	1643	1609	1378	1014	966	998	1308	1358	1280	1494	&							
	1438	1458																			
476	1158	1202	1270	1643	1601	1609	1110	1262	1014	1308	1326	1358	1637	&							
	1613	1494																			
477	1272	954	1178	1651	1378	1639	970	986	1194	1360	1280	1352	1442	&							
	1426	1645																			
478	954	1176	1178	1378	1617	1639	982	1026	986	1280	1350	1352	1422	&							
	1466	1426																			
479	954	1270	1176	1378	1609	1617	966	1192	982	1280	1358	1350	1438	&							
	1631	1422																			
480	1178	1176	1205	1639	1617	1629	1026	1168	1170	1352	1350	1370	1466	&							
	1625	1633																			
481	1600	1576	1608	1201	1151	1269	1584	1489	1612	1325	1301	1357	1105	&							
	1009	1261																			
482	1576	1373	1608	1151	949	1269	1453	1433	1489	1301	1275	1357	993	&							
	961	1009																			
483	1576	1558	1373	1151	1149	949	1566	1445	1453	1301	1299	1275	1251	&							
	989	993																			
484	1558	1568	1373	1149	1265	949	1485	1429	1445	1299	1353	1275	1005	&							
	957	989																			
485	1558	1548	1568	1149	1196	1265	1552	1554	1485	1299	1321	1353	1101	&							
	1257	1005																			
486	1608	1373	1616	1269	949	1175	1433	1417	1630	1357	1275	1349	961	&							
	977	1191																			
487	1373	1580	1616	949	1171	1175	1413	1461	1417	1275	1345	1349	973	&							
	1021	977																			
488	1373	1568	1580	949	1265	1171	1429	1574	1413	1275	1353	1345	957	&							
	1187	973																			
489	1616	1580	1628	1175	1171	1204	1461	1586	1624	1349	1345	1369	1021	&							
	1163	1167																			
490	1548	1556	1568	1196	1147	1265	1550	1483	1554	1321	1297	1353	1099	&							
	1003	1257																			
491	1556	1371	1568	1147	947	1265	1443	1427	1483	1297	1273	1353	987	&							
	955	1003																			
492	1556	1578	1371	1147	1153	947	1564	1451	1443	1297	1303	1273	1249	&							
	991	987																			
493	1578	1606	1371	1153	1267	947	1487	1431	1451	1303	1355	1273	1007	&							
	959	991																			
494	1578	1598	1606	1153	1199	1267	1582	1610	1487	1303	1323	1355	1103	&							
	1259	1007																			
495	1568	1371	1580	1265	947	1171	1427	1411	1574	1353	1273	1345	955	&							
	971	1187																			
496	1371	1614	1580	947	1173	1171	1415	1459	1411	1273	1347	1345	975	&							
	1019	971																			

497 1371 1606 1614 947 1267 1173 1431 1626 1415 1273 1355 1347 959 &
 1189 975
 498 1580 1614 1628 1171 1173 1204 1459 1622 1586 1345 1347 1369 1019 &
 1165 1163
 499 1598 1640 1606 1199 1155 1267 1634 1491 1610 1323 1305 1355 1107 &
 1011 1259
 500 1640 1375 1606 1155 951 1267 1455 1435 1491 1305 1277 1355 995 &
 963 1011
 501 1640 1660 1375 1155 1159 951 1652 1447 1455 1305 1309 1277 1253 &
 999 995
 502 1660 1650 1375 1159 1271 951 1495 1439 1447 1309 1359 1277 1015 &
 967 999
 503 1660 1670 1650 1159 1206 1271 1666 1664 1495 1309 1327 1359 1111 &
 1263 1015
 504 1606 1375 1614 1267 951 1173 1435 1419 1626 1355 1277 1347 963 &
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 1023 979
 506 1375 1650 1638 951 1271 1177 1439 1644 1423 1277 1359 1351 967 &
 1193 983
 507 1614 1638 1628 1173 1177 1204 1463 1632 1622 1347 1351 1369 1023 &
 1169 1165
 508 1670 1662 1650 1206 1161 1271 1668 1497 1664 1327 1311 1359 1113 &
 1017 1263
 509 1662 1377 1650 1161 953 1271 1449 1441 1497 1311 1279 1359 1001 &
 969 1017
 510 1662 1642 1377 1161 1157 953 1654 1457 1449 1311 1307 1279 1255 &
 997 1001
 511 1642 1608 1377 1157 1269 953 1493 1437 1457 1307 1357 1279 1013 &
 965 997
 512 1642 1600 1608 1157 1201 1269 1636 1612 1493 1307 1325 1357 1109 &
 1261 1013
 513 1650 1377 1638 1271 953 1177 1441 1425 1644 1359 1279 1351 969 &
 985 1193
 514 1377 1616 1638 953 1175 1177 1421 1465 1425 1279 1349 1351 981 &
 1025 985
 515 1377 1608 1616 953 1269 1175 1437 1630 1421 1279 1357 1349 965 &
 1191 981
 516 1638 1616 1628 1177 1175 1204 1465 1624 1632 1351 1349 1369 1025 &
 1167 1169

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517	1222 1136 1202 1152 1592 1561 1601 1577 1054 1242 1070 1106 1318 & 1292 1326 1302 1474 1605 1571 1585	
518	1136 1132 1152 1150 1561 1537 1577 1559 1238 1070 1060 1252 1292 & 1282 1302 1300 1543 1571 1547 1567	
519	1132 1218 1150 1197 1537 1529 1559 1549 1044 1060 1234 1102 1282 & 1314 1300 1322 1470 1547 1539 1553	
520	1218 1134 1197 1148 1529 1535 1549 1557 1052 1234 1068 1100 1314 & 1290 1322 1298 1468 1539 1545 1551	
521	1134 1138 1148 1154 1535 1563 1557 1579 1236 1068 1062 1250 1290 & 1284 1298 1304 1541 1545 1573 1565	
522	1138 1220 1154 1200 1563 1590 1579 1599 1046 1062 1240 1104 1284 & 1316 1304 1324 1472 1573 1603 1583	
523	1220 1140 1200 1156 1590 1657 1599 1641 1056 1240 1072 1108 1316 & 1294 1324 1306 1476 1603 1649 1635	
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527	1146 1142 1162 1158 1683 1659 1663 1643 1246 1074 1064 1256 1296 & 1286 1312 1308 1679 1675 1647 1655	
528	1142 1222 1158 1202 1659 1592 1643 1601 1048 1064 1242 1110 1286 & 1318 1308 1326 1478 1647 1605 1637	
529	1596 1518 1213 1120 1592 1561 1222 1136 1396 1365 1334 1030 1621 & 1388 1184 1080 1474 1318 1292 1054	
530	1518 1508 1120 1118 1561 1537 1136 1132 1533 1334 1330 1228 1388 &	

	1386	1080	1078	1543	1292	1282	1238										
531	1508	1524	1118	1209	1537	1529	1132	1218	1402	1330	1361	1036	1386	&			
	1527	1078	1180	1470	1282	1314	1044										
532	1524	1516	1209	1116	1529	1535	1218	1134	1400	1361	1332	1028	1527	&			
	1384	1180	1076	1468	1314	1290	1052										
533	1516	1510	1116	1122	1535	1563	1134	1138	1531	1332	1336	1226	1384	&			
	1380	1076	1082	1541	1290	1284	1236										
534	1510	1594	1122	1211	1563	1590	1138	1220	1403	1336	1363	1037	1380	&			
	1619	1082	1182	1472	1284	1316	1046										
535	1594	1520	1211	1124	1590	1657	1220	1140	1398	1363	1340	1032	1619	&			
	1390	1182	1086	1476	1316	1294	1056										
536	1520	1514	1124	1128	1657	1685	1140	1144	1687	1340	1344	1230	1390	&			
	1392	1086	1090	1677	1294	1288	1244										
537	1514	1694	1128	1215	1685	1691	1144	1224	1408	1344	1367	1042	1392	&			
	1693	1090	1186	1480	1288	1320	1050										
538	1694	1522	1215	1130	1691	1683	1224	1146	1410	1367	1342	1034	1693	&			
	1394	1186	1088	1482	1320	1296	1058										
539	1522	1512	1130	1126	1683	1659	1146	1142	1689	1342	1338	1232	1394	&			
	1382	1088	1084	1679	1296	1286	1246										
540	1512	1596	1126	1213	1659	1592	1142	1222	1406	1338	1365	1040	1382	&			
	1621	1084	1184	1478	1286	1318	1048										
541	1597	1517	1214	1119	1596	1518	1213	1120	1395	1366	1333	1029	1593	&			
	1501	1203	1094	1396	1365	1334	1030										
542	1517	1507	1119	1117	1518	1508	1120	1118	1532	1333	1329	1227	1501	&			
	1500	1094	1091	1533	1334	1330	1228										
543	1507	1525	1117	1210	1508	1524	1118	1209	1401	1329	1362	1035	1500	&			
	1523	1091	1195	1402	1330	1361	1036										
544	1525	1515	1210	1115	1524	1516	1209	1116	1399	1362	1331	1027	1523	&			
	1499	1195	1092	1400	1361	1332	1028										
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	1502	1092	1093	1531	1332	1336	1226										
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	1588	1093	1198	1403	1336	1363	1037										
547	1595	1519	1212	1123	1594	1520	1211	1124	1397	1364	1339	1031	1588	&			
	1504	1198	1095	1398	1363	1340	1032										
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	1505	1095	1098	1687	1340	1344	1230										
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	1696	1098	1208	1408	1344	1367	1042										
550	1695	1521	1216	1129	1694	1522	1215	1130	1409	1368	1341	1033	1696	&			
	1506	1208	1097	1410	1367	1342	1034										
551	1521	1511	1129	1125	1522	1512	1130	1126	1688	1341	1337	1231	1506	&			
	1503	1097	1096	1689	1342	1338	1232										
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	1317	1307	1325	1047	1063	1241	1109							

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579	1577	1559	1374	1567 1446 1454
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707	1662	1642	1682	1658	1654	1674	1646	1678
708	1642	1600	1658	1591	1636	1646	1604	1477

END

-27	-1	-1	1	* EXCITATION POTENCIAL.
-1	1	1		* ELECTRODE AT V=0.
-27	34	1	S	* HOLDING ROTATIONAL DOF.
-20	34	1	S	* HOLDING ROTATIONAL DOF.
-1	34	1	S	* HOLDING ROTATIONAL DOF.

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